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THE ORIGIN OF LAWS, ARTS, and SCIENCES, AND THEIR PROGRESS AMONG The moſt ANCIENT NATIONS.

Tranſlated from the French of the Preſident
DE GOGUET.

IN THREE VOLUMES.

Adorned with Cuts.

EDINBURGH:
Printed by ALEX. DONALDSON and JOHN REID.
For the TRANSLATOR.
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MDCCLXI.

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THE ORIGIN OF LAWS, ARTS, and SCIENCES, AND THEIR PROGRESS AMONG The moſt ANCIENT NATIONS.

VOLUME I.

From the DELUGE to the Death of JACOB.

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PREFACE.

THE deſign of a preface, is to inform the reader of the principal drift and general plan of the work preſented to him. I ſhall do both theſe in as few words as poſſible.

The hiſtory of laws, arts, and ſciences, is, properly ſpeaking, the hiſtory of the human mind. This great and moſt important ſubject has often indeed been treated of already; but, in my opinion, ſufficient pains have not as yet been taken to diſcover the real origin, and unfold the gradual improvements of all the various branches of our knowledge. In general, the writers who have engaged in this vaſt and arduous undertaking, have fallen into great miſtakes, by indulging themſelves too much in conjectures, by following fancies more than facts, and taking their own imaginations, rather than the lights of hiſtory, for their guides.

I have reſolved therefore to draw a more faithful repreſentation of the firſt ſteps of the human underſtanding. In order to this, I propoſe to trace the origin of laws, arts, and ſciences, with more care and diligence, and in a manner more agreeable to hiſtory, than has hitherto been done. I ſhall endeavour alſo to ſhew the ſtrict connection of all theſe different objects, and their mutual influence upon one another. For, in all nations, the ſtate of the arts and ſciences has at all times been intimately connected with, and greatly influenced by the political conſtitution and form of government. Theſe ſeveral objects are, at leaſt, as much connected with manners and cuſtoms. The arts eſpecially, bear ſo ſtrong an impreſſion of the character of the people by whom they have been cultivated, that an attentive examination of their origin and progreſs is the moſt effectual way to diſcover the genius, the manners, and turn of mind, of the various nations of the world. I have followed then, as far as I could perceive them, the footſteps of the human underſtanding, and repreſented them fairly as they appeared to me from hiſtory. I have inſiſted particularly on certain diſcoveries, which being in common and familiar uſe with us, do not engage our attention ſo much as they deſerve. Nothing, however, will be of greater ſervice to ſhew us the condition to which a great part of mankind was reduced for many ages. This is the principal drift of my undertaking.

To give a ſhort account of the general plan and diſpoſition of this work: It is well known, that there are but few hiſtorical remains of the firſt ages now extant. I have been obliged, therefore, to join ſeveral of theſe ages together, and conſider them in one general point of view, in order to ſettle and fix the origin of laws, arts, and ſciences among the nations of antiquity. For this reaſon, I have thought proper to divide the whole ſpace of time I have undertaken to examine, into three principal æras. Each of theſe comprehend a certain number of ages, more or leſs fertile, in proportion to the facts left us upon record by ancient writers. We ſhall always, however, be able to perceive pretty diſtinctly the real ſtate of the ſeveral nations I ſhall have occaſion to conſider.

For though time and barbarity have robbed us of many ancient writings, yet this loſs has only deprived us of the knowledge of ſome hiſtorical facts, of ſome particular events and details. There ſtill remain a ſufficient number of ancient monuments of all kinds, to ſhew in general, what has been the ſtate of the arts and ſciences in every age, from the formation of the firſt ſocieties, after the confuſion of tongues and diſperſion of families. We may even diſcover to what degrees of perfection knowledge had arrived in ancient times.

For example, the manner in which Julius Cæſar regulated the calendar, ſhews the preciſe point to which aſtronomy, or the knowledge of the celeſtial motions, had attained at that period. This knowledge has never been loſt from that time to our days, though, in this interval, an inundation of barbarians overflowed Europe and Aſia, for ſeveral ages ſucceſſively. With reſpect to the other arts and ſciences, (without mentioning ſeveral other authors which give us ſome light into the progreſs of the human underſtanding), Homer, Heſiod, Herodotus,

dotus, Diodorus, Vitruvius, Strabo, Seneca, Pliny, and Plutarch, inform us of every thing that was known in their times, or before them, in arts, ſciences, and politics. If from the bright days of Athens and Rome, to the reſtoration of learning in Europe, no additions had been made to human knowledge, neither was any thing loſt that had been before diſcovered. The minds of men might be ſomewhat clouded, and their taſte depraved; but the fundamental principles, the elements of the arts and ſciences, were never annihilated, or needed to be again invented. No uſeful or important diſcovery, nothing, in a word, that was worth preſerving, was entirely loſt. Every thing that was intereſting to the good and happineſs of ſociety, has been let down to us by the chain of uninterrupted tradition *. It is not even extremely difficult to trace the ſtream of knowledge to its ſource, and diſcover the date and origin of the greateſt part of the arts and ſciences. We may at leaſt follow this track a conſiderable way, and form a pretty juſt eſtimate of the progreſs and extent of knowledge in every age.

The firſt æra which is the ſubject of the firſt part of this work, begins at the deluge, and ends at the death of Jacob †.

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* We have a very bad work of Pancirolus's, intitled, *Rerum memorabilium ſive deperditarum*, &c. This is, in general, a very crude indigeſted compilation, in which he ſticks at nothing. The falſeſt facts and moſt ridiculous tales are adopted for truths. This work is an example of the greateſt negligence, joined to the ſtrongeſt itch of making a book. In what Pancirolus ſays of certain arts, which, according to him, were known to the ancients, and have been ſince loſt, there are almoſt as many miſtakes and puerilities as words. The arts which he ſpeaks of, either never exiſted, or they exiſt to this day, and in a more perfect ſtate than ever. It would be eaſy to demonſtrate this, if the work was worth the trouble.

I ſhall add, that if we ſeem to have loſt ſome of the ancient arts, it is becauſe they have been ſuperſeded by more uſeful inventions, and more commodious methods. Gunpowder and artillery, for example, have made the moſt part of the military machines of the ancients to be neglected. The ſame may be ſaid of ſeveral other arts, which are fallen into diſuſe, either from new diſcoveries with which the world has been enriched, or becauſe theſe arts have been of little importance to ſociety. See part 2. b. 2. ſect. 1. c. 2.

† This æra comprehends the ages which the Greeks name *unknown times*, becauſe what little they knew of them ſcarce deſerved the name of hiſtory.

The ſecond æra, beginning at the death of Jacob, ends at the time when kingly government was eſtabliſhed among the Iſraelites *.

The third and laſt æra, beginning at the eſtabliſhment of kingly government among the Iſraelites, ends at their return from the captivity; that is, a little after the acceſſion of Cyrus to the throne of Perſia †.

I have taken particular care, under each of theſe æras, to ſpeak only of that knowledge and thoſe diſcoveries which properly belonged to it; and anxiouſly avoided anticipating time, or beſtowing on any age thoſe lights which it could not poſſeſs. I muſt intreat the reader, never to loſe ſight of this obſervation in the peruſal of this work. He will find, that if I do not ſpeak of certain diſcoveries in one æra, it is becauſe no ſuch diſcoveries had then been made.

Further, theſe different æras were not pitched upon at random. I have endeavoured to collect, under each of them, a number of ſucceeding ages, in which there were no changes extremely remarkable in the ſtate of thoſe nations I had occaſion to ſpeak of, in which, in a word, knowledge ſeemed to advance by ſlow, and almoſt imperceptible degrees. I have thought proper alſo, to diſtinguiſh each of theſe æras by ſome event in ſacred hiſtory. The truth is, in order to form a clear and diſtinct idea of univeral hiſtory, it is neceſſary to make choice of ſome particular one, to ſerve as a common ſtandard, to which all others are to be compared and referred. The hiſtory of the people of Iſrael is the only one that can anſwer this purpoſe. For, beſides that it is more familiarly known than any other, it carries on a continued narration from the beginning of the world, without chaſm or interruption; an advantage which no profane hiſtory can pretend to. There are, it muſt be owned, ſome chronological difficulties to be met with in the Jewiſh hiſtory; but theſe are of little conſequence, in com-

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* This ſpace is nearly cotemporary with what the Greeks called the *fabulous*, or *heroic times*.

† The commencement of this æra falls in pretty nearly with the beginning of thoſe ages which are called by the Greeks the *times of hiſtory*.

pariſon of that univerſal obſcurity and uncertainty which reign in the hiſtories of all other nations.

I have divided my work into three parts, correſponding to the three æras I have pointed out. Each part contains the ſame number of books. I have purſued a method abſolutely equal and uniform, through the whole three parts. The firſt book of the ſecond part begins exactly where the firſt book of the firſt part ends; and ſo of the ſecond, the third, &c. All the books in all the three parts march in the ſame order, and anſwer exactly to each other.

Some, perhaps, would have liked it better, if I had collected into one book, all I had to ſay on the origin and progreſs of laws; into another, all that related to arts; into a third, all that belonged to ſciences; and ſo of the reſt. By this means, it will be ſaid, it would have been eaſier to draw an exact repreſentation of the growth and improvement of each branch of knowledge. The reader might have peruſed at once, and without interruption, the hiſtory of each of theſe grand objects, and judged more eaſily of their different advances among the ſame people.

I was abundantly ſenſible, I will preſume to ſay it, of all the advantages of ſuch a diſpoſition. But my deſign has been to diſplay the whole maſs of knowledge of all kinds, among each people, in each age. I could not have accompliſhed this deſign, by giving a continued hiſtory of each branch of knowledge by itſelf. The plan, therefore, which I have adopted, ſeemed to me to deſerve the preference. This diviſion appeared extremely proper to make us ſenſible of the difference between one nation and another at the ſame time, and in the ſame nation at different times, in all thoſe various kinds of knowledge. This arrangement which I have contrived, enables the reader to make this compariſon with great eaſe, and to trace, at the ſame time, the relation and proportion there has been, in the ſame ages, between the various objects I have treated of. I had a mind likewiſe to prevent that diſguſt and wearineſs which is apt to ariſe from long attention to objects eſſentially the ſame and uniform. With this view, I have thought it proper to break the thread and continuity of my ſeveral ſubjects, and to give the reader that relaxation and amuſement occaſioned by variety of matters in the ſame part. Theſe are the reaſons which have determined me to divide the whole ſpace of time I have undertaken to examine in this work, into three æras, which form ſo many different parts, perfectly reſembling each other in their order and contexture.

It will be, perhaps, demanded, why I have not begun my inquiries before the deluge, and for what reaſon I have paſſed over in ſilence all the ages prior to that event. It would be very eaſy to anſwer that queſtion, and give ſatisfying reaſons for my not going higher than the æra which I have thought proper to chuſe.

The hiſtory of the ages before the deluge, furniſhes but few materials for the ſubject of our inquiries. Moſes has related only thoſe grand events which it was neceſſary for mankind to be acquainted with, and ſuppreſſed all details which would have ſerved only to gratify an idle curioſity. Beſides, it is of little conſequence to us, what the antediluvian ſtate of mankind was. The devaſtations occaſioned by the deluge, joined to the confuſion of tongues and diſperſion of families, have almoſt entirely changed the face of nature, and rendered this a new world. We may conſider, therefore, the times which immediately ſucceeded that deplorable cataſtrophe, as in ſome ſort the firſt ages and infancy of the world, when mankind were reduced almoſt to the ſame ſtate as at firſt. For which reaſon, I am of opinion, that we may fix the date of the origin of the far greateſt part of laws, arts, and ſciences, poſterior to the deluge; as the few traces of antediluvian knowledge which might have eſcaped that terrible deſolation, were afterwards greatly defaced and obſcured, if not entirely loſt.

It may be demanded further, why I have confined myſelf to the æra of the acceſſion of Cyrus to the throne of Babylon, and what has determined me not to extend my views beyond that period. It will not be more difficult to anſwer this queſtion than the firſt.

I have not undertaken to give a complete and finiſhed hiſtory of laws, arts, and ſciences among the ancient nations. I propoſed only to diſcover their origin, and their firſt improvements. I imagine, I have ſufficiently anſwered this intention, by examining all the ages which intervened between the deluge and the days of Cyrus. At this æra, the picture of the world is ſo diſtinct and fair, that it will be eaſy to follow the footſteps of the human underſtanding, and form an exact idea of its further improvements and diſcoveries. At this period too, we behold the total fall and annihilation of all the moſt ancient monarchies, thoſe of the Babylonians, the Aſſyrians, the Medes, the Lydians, the Phœnicians, and Egyptians *. Cyrus and his ſon united them all to the throne of Perſia, and formed one mighty empire out of the ruins of all theſe different kingdoms. From this time, the ſeveral nations I have named, ceaſed to form diſtinct and independent ſovereignties. All the diſcoveries, therefore, which theſe nations have had the honour to make, belong entirely to the ages included in this work; and theſe diſcoveries, undoubtedly, comprehend the origin of laws, arts, and ſciences, and their firſt improvements.

With reſpect to the Greeks, their laws were for the moſt part formed before the period to which I have confined myſelf. Lycurgus flouriſhed a long while, and Solon alſo ſome little time before Cyrus. As to the arts and ſciences, the Greeks had received the fundamental principles of them long before this æra. They had even before this time made ſome conſiderable progreſs. We may affirm alſo, that their manners were then much the ſame as in ſucceeding ages. I ſhould then have wandered from my original deſign, if I had carried my inquiries any lower than the age of Cyrus. We might add, that the bright ages of Greece, thoſe of Pericles, Alexander, Plato, Ariſtotle, Apelles, Phidias, Sophocles, Euri-

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* Though the Chineſe hiſtory, according to the common opinion, is nearly as ancient as that of the Babylonians, Egyptians, or any other nation I have mentioned, I do not deſign to make a diſtinct article of it My reaſon for this is, that we are not ſo much concerned to know the progreſs and improvement of laws, arts, and ſciences, among the Chineſe, as among the Babylonians, Egyptians, Phœnicians, and Greeks. For we derive all our laws, arts, and ſciences, from theſe laſt nations, by an uninterrupted chain; whereas we have learned hardly any thing from the Chineſe. It is even but a few ages ſince we knew any thing of them. We are not therefore ſo much intereſted in the progreſs of their knowledge, as in that of thoſe nations who have been our firſt teachers and preceptors.

pides, &c. are ſo well known, that it would be difficult to throw any new light upon them. We cannot ſpeak of them without being every moment in danger of repeating what has been already ſaid in ſeveral works, which are in every body's hands. Theſe are the reaſons which determined me not to extend my views beyond the period which I have choſen.

Let us now ſay a few words concerning the order in which I have ranged the ſeveral ſubjects of this work.

I ſpeak firſt of the origin of laws, policy, and government, becauſe arts, ſciences, and, in a word, all diſcoveries have had their origin and their improvements in ſettled and civilized ſocieties. But ſuch ſocieties could never have been formed without the help of laws, and a government founded on certain principles.

The arts, properly ſo called, come next. Their diſcovery, and more eſpecially their improvement, are the work of well-regulated ſocieties, particularly of ſuch as have ſettled early, and have always inhabited the ſame ſpot; which nothing but agriculture could enable them to do. For this reaſon, I have treated of the origin of agriculture before that of all other arts, as it has been the occaſion in a great meaſure of their invention, multiplicity, and progreſs.

I have thought proper to place the article of the ſciences immediately after that of the arts, becauſe they owe their origin to mechanical operations without rules or principles. It was by little and little, by a long courſe of experience, trials, and reflections, that mankind were enlightened, that they formed principles and ſyſtems, and brought their diſcoveries and their knowledge to that degree of perfection which deſerves the name of *ſcience*.

After this, I treat of the origin of commerce and navigation. The reaſon is extremely obvious, why I did not introduce theſe two ſubjects, till after I had repreſented the origin and firſt improvements of the arts and ſciences. For there could be no ſuch thing as a regular and ſettled commerce, till after the invention of a certain number of arts and ſciences. The ſame may be ſaid, and with ſtill better reaſon, of navigation. Without ſome ſmattering at leaſt in arithmetic, aſtronomy and mechanics, commerce and navigation, could never have exiſted.

I may ſay the ſame of the military art, which I place after commerce and navigation. We muſt diſtinguiſh between mere fighting and the art of war. Mankind did not arrive at any ſkill in the art of making war, till after they had formed ſome notions, not only of the practical part, but alſo of the theory and political ſyſtem of that art. Accordingly the military art languiſhed a long time in a ſtate of infancy and imperfection.

I have reſerved for the laſt article in each part, the manners and cuſtoms of the ſeveral nations I had occaſion to treat of, in each of the three æras which I have choſen. I ſhould have thought my work defective in an eſſential part, if I had omitted to draw this picture of manners and cuſtoms. I have already obſerved, that there is an intimate relation between the manners of a nation, and the arts and ſciences which it cultivates. Their influence upon each other is reciprocal.

As chronology is the baſis of my work, and as I have endeavoured to follow it as ſtrictly as poſſible; I have added to each of the three parts, a chronological table, which preſents at one glance, and on the ſame line, all the principal events which happened in the ſame age, among the ſeveral people I have had occaſion to mention. This, I imagined, would enable the reader, with greater facility, to diſcern the difference between one æra and another, and to compare one nation with another in the ſame ages.

Nothing now remains but to give ſome account of the notes at the bottom of the pages. They are of two kinds. Some of them are deſigned for proofs and vindications, and ſometimes even illuſtrations of the text. The others are intended to diſcuſs and reſolve ſuch difficulties and contradictions as pretty often occur in the hiſtory of ancient nations. Theſe two kinds of notes are diſtinguiſhed from the quotations of authors, by being marked with different characters. I uſe the letters of the alphabet for pointing out the quotations, and the Arabian cyphers, between two parentheſes, for the notes *.

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* In the tranſlation, the quotations are denoted by the letters of the alphabet; and the notes moſtly by the marks of reference, * † ‡ ||.

Beſides theſe notes, I have placed, at the end of each volume, a few critical diſſertations on certain difficult and intricate points, which neceſſarily required a longer diſquiſition than could well be comprehended in a note at the bottom of the page. The greateſt part of theſe diſſertations are deſigned to eſtabliſh the truth of ſome particular opinions which I have ſeen reaſon to adopt and propoſe.

In unfolding the origin of laws, arts, and ſciences, and inveſtigating their firſt improvements among ancient nations, I have indulged conjecture as little as it was poſſible; but have followed, as ſtrictly as I could, the hiſtory and order of facts. This is a principle which muſt never be departed from in writing on ſuch a ſubject as this, otherwiſe we ſhall give the hiſtory of our own imaginations, and not of real events. We muſt firſt be aſſured that the fact on which we build is well aſcertained, and then, however extraordinary it may appear, we muſt ſubject our imagination to reality. To prove that a thing is improbable, is not a ſufficient proof that it is falſe. Has not experience often ſhewn us that what is true, is not always likely? Becauſe a fact contradicts a favourite hypotheſis, is this a ſufficient reaſon to reject it? Can metaphyſical reaſoning deſtroy hiſtorical evidence. Mankind are not condemned to the hard neceſſity of fluctuating in perpetual doubts, about the principal facts which have been tranſmitted to us by hiſtory and tradition. The moſt important events, ſuch as the formation of nations, the origin of laws, arts, and ſciences, are known. We muſt not think, that theſe things are quite imperceptible, even in the remoteſt ages of antiquity. All that is related about them, is by no means arbitrary, uncertain, and problematical. Ingenuity of mind and integrity of heart would be ſufficient to convince us of this precious truth, if we could but impoſe ſilence on our preſumptuous vanity, and guard againſt our little prepoſſeſſions, which often miſlead us a great deal more than we imagine.

When I found myſelf quite deſtitute of facts and hiſtorical monuments, particularly in the firſt ages, I conſulted what has been ſaid, both by ancient and modern writers, on the manners of ſavage nations. I imagined, that the conduct of theſe nations would give us pretty clear and juſt ideas of the ſtate of the firſt wandering colonies, immediately after the confuſion of tongues and diſperſion of families. We may collect both from ancient and modern relations of this kind, ſeveral points of compariſon, capable of removing many doubts which might ariſe about certain extraordinary facts, which I have thought proper to build upon. The relations concerning America in particular, have been extremely uſeful to me on this article. We may judge of the ſtate of the ancient world for ſome time after the deluge, by the condition of the greateſt part of the new world when it was firſt diſcovered. In comparing what the firſt adventurers have told us concerning America, with what antiquity has tranſmitted to us concerning the manner in which the inhabitants of our continent lived in thoſe times which were reckoned the firſt ages of the world, we cannot but perceive the moſt evident and ſtriking reſemblance and conformity. I have, therefore, pretty often compared the relations of modern travellers with thoſe of ancient hiſtorians, and intermingled their narrations, with a deſign to ſupport the teſtimony of ancient writers, to ſhew the poſſibility, and even reality of certain facts which they relate, and certain cuſtoms which they mention. Theſe different paſſages thus compared and brought together, mutually ſupport each other, and lay a ſolid foundation for every thing I have ſaid concerning the progreſs of the human underſtanding, in its improvements and diſcoveries, which I date from the deluge. For, as I have already obſerved, whatever knowledge mankind had acquired before that time, was almoſt entirely loſt in that terrible deſolation.

Finally, I advance nothing without pointing out the ſources from whence it was taken, and quoting my authorities; and that the reader may be the better able to examine my quotations, and judge whether I have applied them properly, I add a table of authors uſed in this work, ſpecifying the editions which I have followed. As I have always taken care to name the very page in which the words I refer to may be found, the verification of my quotations will not be difficult. This, by the by, is what every writer on hiſtorical ſubjects ought to do. It is not ſufficient to ſatisfy and convince the reader of the truth of the facts advanced, ſimply to quote the author from whence they are taken; it is neceſſary not only to name the book, but the very page. I know a great number of modern writers, who, making uſe of paſſages taken, for example, from Herodotus, Diodorus, or Strabo, &c. content themſelves with only citing Herodotus, Diodorus, or Strabo, book 1. Such vague quotations are not enough. How is it poſſible to find, perhaps a ſingle half-ſentence in 89 folio pages of which the firſt book of Herodotus conſiſts, or in 111 which compoſe that of Diodorus, or in 116 contained in the firſt book of Strabo? I ſay more; ſuch kind of quotations may juſtly be ſuſpected of infidelity and impoſition. I can ſpeak in this manner from conviction and experience.

I ſhall conclude this preface with an obſervation, which I intreat the reader never to loſe ſight of in the peruſal of this work. What I advance concerning the invention of the moſt neceſſary arts, and the origin of ſciences, can only properly be applied to thoſe colonies, which, after the confuſion of tongues and diſperſion of families, did not ſettle ſoon, but led a wandering and vagabond life for a certain time. It is unqueſtionable, that theſe colonies loſt all traces of the arts and ſciences, and were under a neceſſity of inventing them anew. The caſe was different with thoſe families which ſettled early, eſpecially with ſuch as continued to dwell in the ſame diſtricts where Noah and his family fixed immediately after the deluge. We cannot doubt but theſe families, on the contrary, preſerved the fundamental principles of the arts and ſciences, when we perceive all uſeful diſcoveries proceeding from the countries where they dwelt, as from a common centre, and from thence ſpreading over all the world. I repeat it again, therefore, that all I have ſaid concerning the origin of arts and ſciences, can, in ſtrictneſs, be applied only to thoſe colonies who preferred a vagabond to a ſedentary life, and by that means fell into a ſtate of ignorance and brutality.

ADVERTISEMENT

By the TRANSLATOR.

THE Preſident DE GOGUET has been ſo full in his preface, as to render any further account of his work unneceſſary on the part of the tranſlator. But as the author has ſpoken with great freedom both of ancient and modern writers, it may be proper to obſerve, that, in general, we think his criticiſm juſt and new, and his objections unanſwerable, with exception only to what he ſays of our learned countryman Dr POCOCKE.

WE hope to be eaſily excuſed this reflection in favour of that truly reſpectable writer, to whom the learned world is ſo much obliged for his elaborate reſearches into the remains of antiquity, and for the immenſe pains he has taken to illuſtrate them.

WE refer the reader to *The deſcription of the Eaſt*, publiſhed in 1743. There he will ſee how much the Preſident himſelf has been obliged to a work, which, we are ſorry to ſay, he has treated very unhandſomely. We think the account of the ancient architecture of the Egyptians in the firſt volume perſpicuous and ſatisfactory, and the diſcovery of their ignorance of vaults and arches due only to that work. (See the Origin of laws, vol. 3. p. 74.)

In the deſcription of the ſepulchre of Oſymanduas, which the Preſident treats as conjectural *, Dr Pococke only ſays, that the grand building which he ſaw at Luxerein or Lacſor, anſwers very well to the particular deſcription Diodorus gives of that ſepulchre, and accordingly lays it before the reader almoſt word for word. (See Diodorus, l. 1. p. 44. & 45.). M. the Preſident ſays, that Diodorus borrowed from Hecatæus, a writer of no credit. It may be ſo; yet is that building clearly deſcribed, and anſwers very well to the particular deſcription Diodorus gives of the ſepulchre of Oſymanduas. (See Deſcript. of the Eaſt, vol. 1. p. 106. 107. et ſeq.)

We thought it our duty to ſay thus much; not that the Biſhop of Oſſory can ſtand in need of ſuch help for the ſupport of a character already ſo well eſtabliſhed, but that we were unwilling to ſuffer a cenſure ſo unmerited to paſs without animadverſion.

In the 3d volume of this work, p. 208. there is this note: "For what we ought to think of the "arts, ſciences, laws, civil polity, and *morals* of "the Chineſe, ſee Anſon's voyage, l. 3. c. 10."

Talking of the very unfavourable account there given of the manners of the Chineſe with an eminent judge, to whom the tranſlator has the honour of being known, he was pleaſed to communicate the following anecdote.

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* Origin of laws, &c. vol. 2. p. 146.

When we hear the character of a private perſon loaded with reproach founded on real or pretended facts, which we have no means of contradicting, though unknown to us, it is natural, for the ſake of human nature, to wiſh that they may not be true. But if we happen to be furniſhed with indiſputable evidence of the virtue of that perſon in other inſtances, a mind of any benevolence will ſeize with pleaſure an opportunity of urging them in his vindication. How much more ſhould we be influenced by this principle of equity where a populous nation is concerned?

We can aſſure the public, that this relation is well authenticated. It forms a very ſtriking contraſt with the picture of the Chineſe drawn by Lord Anſon's chaplain. We cannot but be pleaſed with an occaſion of doing this piece of juſtice to the hoſpitality of that empire, as well as to the gratitude of the relator; and therefore preſent it to our readers in his own words.

"In December 1728, the ſhip Prince Edward, "burthen 450 tons, (whereof Meſſ. John Stephenſon and Samuel Harriſon were ſupracargoes, Thomas Croſs captain, myſelf Alexander Wedderburn

" purſer, three mates, and 100 ſailors, petty officers " included), ſailed from Calcutta in Bengal, a town " ſituated upon a branch of the river Ganges, upon " an intended voyage to Surat, Madraſs, and Canton " in China; with a cargo amounting in value to " 60,000 l. Sterling. About the middle of September 1729, having advanced towards the coaſt of " China, as far as the latitude of eighteen degrees or " thereabouts, we were attacked by a ſevere ſtorm, " which continued with little abatement till the 25th " of that month; by which time we had got in with " the land, but ſo far to the weſtward of our port, as a " place called *Timpau*; where, being unable to reſiſt " the violence of the weather any longer, it was concluded to run the ſhip aſhore, as the moſt eligible " meaſure, both for the ſafety of our lives, and a " ſalvage of cargo. The ſhip ſoon ſtranded, and " fifty-two men periſhed, the captain and two of the " mates being in that number; but the ſupracargoes, " one of the mates, and myſelf, had the good fortune " to eſcape aſhore before the ſhip ſeparated. Under " theſe circumſtances, we addreſſed ourſelves to the " mandarines governing that part of the country, " who, indeed, received us with marks of humanity " and kindneſs far exceeding our expectations; not " only appointing us a guard for our protection, but " alſo ordering out the natives to aſſiſt in fiſhing upon " the wreck; by which means we, at that time, recovered 5000 l. in bullion, and afterwards about " 10,000 l. more. Before we ſet forward for Canton, "the friendſhip and exactneſs of our benefactors were "very remarkable; who, having fixed a time for our "attendance, took a particular account of our money, the names of the perſons ſaved, and furniſhing us with an eſcort to conduct us through their "diſtrict, conſigned us, dead or alive, to one Sugua "at Canton, a merchant well known to the Engliſh "there. And thus were we paſſed from one diſtrict "to another, till we reached our port; which we did in "nine days, travelling ſometimes by land and ſometimes by water. Here too thoſe in the adminiſtration ſhewed us their benevolence, by repreſenting "our ſituation to the Emperor, then reſiding at Pekin; who ſoon ſent orders for our relief, and an "order to diſtribute a ſum of money amongſt us, in "order to enable us to return from whence we came. "Theſe orders were thus executed: Being appointed "to attend the Chimtuck, Hoppo, and other ſtate-officers met on that occaſion, each of us received "the above bounty in a bag, (whereon was expreſſed, "in Chineſe characters, the nature of the gift), in "the following proportions, viz. firſt ſupracargo, "450 tales; ſecond ſupracargo, 350 tales; myſelf "Alexander Wedderburn, 250 tales, or 100 l. Sterling; the mate, 75 tales; and each common ſailor "15 tales; in all 2000 tales, or 800 l. Sterling."

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The ORIGIN of LAWS, ARTS, and SCIENCES, and their PROGRESS among the moſt ANCIENT NATIONS.

INTRODUCTION.

Of the ſtate of mankind immediately after the deluge.

THE family of Noah remained no longer united in one ſociety on the plains of Shinar, than was neceſſary for their increaſe and ſecurity. As ſoon as they were become ſufficiently numerous, God was pleaſed to diſperſe them into the different regions of the earth, about the time of the birth of Peleg, nearly 150 years after the deluge. It appears, that theſe new inhabitants of the earth had no deſign to ſeparate. They were ſometimes forced to part in order to ſeek ſubſiſtence: but the fear of loſing each other, in their various excurſions, made them uſe all the precautions they could think of to prevent ſo great a misfortune. With this view they formed the deſign of building a city, and raiſing a tower in it to a prodigious height, that it might be ſeen at a great diſtance, and ſerve them for a ſignal and centre of reunion *. But Providence judging their ſeparation neceſſary for the more ſpeedy repeopling of the earth, employed the moſt effectual means to oblige them to diſperſe. All mankind at that time ſpoke the ſame language [a]. The Supreme Being diſſolved this powerful bond of union, by confounding their tongues in ſuch a manner, that not underſtanding each other, they ſeparated, and directed their ſteps to different parts of the world [b].

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* Here is what ſcripture, according to the Hebrew text, makes the children of Noah ſpeak of this enterpriſe: הבה נבנה לנו עיר ומגדל וראשו בשמים ונעשה לנו שם פן נפוץ על פני כל הארץ.
All tranſlators have rendered theſe words, ונעשה לנו שם פן נפוץ

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by, "Let us make us a name, leſt we be ſcattered abroad," Gen. c. 11. v. 4. It is eaſy to remark, that the ſenſe of this expreſſion is neither clear nor connected. The Septuagint and Vulgate tranſlate a little differently. They have both taken the word שם *Schem* in the ſenſe of *name*; but they have tranſlated פן *phen*, by *antequam*, *before that*. Both the verſions, bear, "Let us make "us a name before that we be diſperſed."

None of theſe verſions give us a clear idea of the motives which induced the ſons of Noah to build the tower of Babel; yet nothing is more eaſy than to render this paſſage intelligible. We need only attend to the different interpretations that the word שם *ſchem* will bear. The word in effect ſignifies a mark, a ſignal, and a name. Interpreters, by fixing on this laſt ſignification, have rendered the paſſage obſcure; but by taking it in the ſenſe of a mark or ſignal, it becomes intelligible. Moſes makes the ſons of Noah ſay, "Let us "build a tower whoſe top may reach unto heaven, and let us make it a mark "or ſignal leſt we be ſcattered", &c.

Beſides, the analogy of languages confirms this interpretation. The Greek words σῆμα, σημεῖον, which ſignify a mark or ſign, are derived from the Hebrew שם, *ſchem*. See Perizon. origin. Babyl. c. 10. p. 168. c. 11. p. 193. c. 12. p. 223.

[a] Gen. c. 11. v. 1. 6.

[b] Ibid. v. 8. 9. Some commentators pretend that there were no new languages formed at the diſperſion. According to them, God only ſowed diſcord among the builders of Babel. They maintain, that theſe words, *terra erat labii unius*, ſignify only an agreement of ſentiment and conformity of deſign in thoſe who undertook to erect that monument. They quote ſeveral expreſſions nearly parallel, which mean no more than being perfectly agreed in the ſame undertaking. For example, it is ſaid in Joſhua, that the kings of Canaan gathered themſelves together to fight againſt Joſhua with *one mouth* [*], that is to ſay, with one accord. For which reaſon the Septuagint renders it ἅμα πάντες, all together; and the Vulgate, *uno animo eademque ſententia*. They quote alſo other paſſages, where theſe expreſſions, *uno ore*, *with one mouth* [†], *humero uno*, *with one ſhoulder* [‡], ſignify with one conſent. They mention another text which ſeems more directly to favour this interpretation. It is a pſalm in which David prays to God to divide the tongues of his enemies, that is to ſay, to ſow diſcord amongſt them [‖].

I acknowledge, that in theſe paſſages the expreſſions *uno ore*, *uno humero*, *&c.* mean only conſent of mind. But it is very evident, that Moſes in this place deſigned to expreſs ſomething more than merely the concord and union of the deſcendents of Noah. Moſes, in order to prepare his reader for what he had to ſay about the confuſion of languages at Babel, takes notice, that until that time, all mankind ſpoke the ſame language. *Ecce unus eſt populus, et unum labium omnibus & ſermonum eorundem.* And as if he intended ſtill farther to prevent the amibiguity of theſe terms, *unum*

[*] c. 9. v. 2. [†] 1 Kings c. 22. v. 13. [‡] Sophon. c. 3. v. 9. [‖] Pſ. 54. v. 10.

labium,

I ſhall not undertake to deſcribe the routes of the ſeveral colonies which were then formed. Such a diſquiſition would be altogether foreign to my preſent purpoſe. I ſhall only obſerve, that if we reflect ever ſo little, with how much eaſe and expedition the Savages, Tartars, and Arabians of our days, tranſport themſelves and their whole families to very great diſtances, we ſhall ſoon be convinced, that thoſe firſt men, naturally robuſt, accuſtomed to a life of labour, and having few wants, when forced to quit their native ſoil in ſearch of new ſettlements, might in a very little time ſpread themſelves over the different climates of our hemiſphere.

But this diſperſion of mankind muſt neceſſarily have conſiderably diminiſhed the primitive knowledge which they had hitherto been able to preſerve. All ſociety being diſſolved by this confuſion of tongues, and families living detached from each other, they ſunk in a little time into the profoundeſt ignorance. Add to this, the conſideration of the tumult and diſorder inſeparable from new eſtabliſhments, and we ſhall eaſily conceive how there was a time, in which almoſt all this world was plunged into the moſt deplorable barbarity. Men wandered in the woods and fields, without laws, without leaders, or any form of government. Their ferocity became ſo great, that many of them devoured each other [c]. All kinds of knowledge, even the moſt common and neceſſary, were ſo much neglected, that not a few had forgot even the uſe of fire [d]. It is to theſe unhappy times we muſt refer what profane hi-

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labium, he adds, *et ſermonum eorundem, they made uſe of the ſame words*; an expreſſion which determines the ſenſe of this paſſage, the ſenſe of which is alſo completely explained in the ſequel of the narration of Moſes. God, ſays he, foreſeeing that ſo long as this union ſhould ſubſiſt among mankind, they would never deſiſt from their enterpriſe, employed the moſt proper means to make them abandon it; that was by confounding their language, and preventing their underſtanding each other. *Venite, deſcendamus et confundamus ibi linguam eorum, ut non audiat unuſquiſque vocem proximi ſui.* I am perſuaded, that, after comparing theſe two texts, we can no longer entertain any doubt concerning the true meaning of the paſſage we have been now examining.

[c] Hom. Odyſſ. l. 9. v. 291. &c. l. 10. v. 116. &c.; Plato *in* Epinomi, p. 1001. E.; Diod. l. 1. p. 17. & 100.; Athen. l. 14. p. 660. F.; Stob. eclog. phyſ. l. 1. p. 18.; Mem. de Trev. Sept. 1751. p. 2111.; Mem. de l'acad. des inſcript. t. 5. mem. p. 118. &c. t. 9. mem. p. 203.

[d] See infra, book 2. *initio.*

ſtorians relate of the miſeries which afflicted the firſt ages of the world. All ancient traditions declare that the firſt men led a life very little different from that of beaſts [e].

We ſhall find no difficulty in believing theſe relations, if we caſt our eyes on what ancient authors tell us of the ſtate of ſeveral countries even in their own times [f], a ſtate the reality of which is confirmed by modern relations [g]. Travellers inform us, that even at this day, in ſome parts of the world, they meet with men who are ſtrangers to all ſocial intercourſe, of a character ſo cruel and ferocious, that they live in perpetual war, deſtroying, and even devouring each other. Theſe wretched people, void of all the principles of humanity, without laws, polity, or government, live in dens and caverns, and differ but very little from the brute creation. Their food conſiſts of ſome fruits and roots with which the woods ſupply them; for want of ſkill and induſtry they can ſeldom procure more ſolid nouriſhment. In a word, not having even the moſt common and obvious notions, they have nothing of humanity but the external figure [h].

Theſe ſavage people exactly anſwer the deſcription given us by hiſtorians of the ancient ſtate of mankind. We ſee even from ſcripture, that, ſoon after the diſperſion, the precepts and example of Noah were ſo generally forgotten, that even the anceſtors of Abraham were plunged in idolatry[i]. When Jacob went into Meſopotamia, he found idolatry mixed with the worſhip of the true God in the family of his uncle Laban[k]. After ſuch facts as theſe, it is not in the leaſt ſurpriſing to find the primitive traditions ſo darkened and disfigured by the moſt ridiculous fables among the Heathen nations.

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[e] Plato *in* Protag. p. 224. F. de leg. l. 3. p. 804. &c.; Ariſt. de rep l. 1. c. 2. p. 297. E.; Euripid. apud. Plut. de placit. philoſ. l 1. c. 7.; Beroſ. apud Syncel. p. 28. C.; Salluſt. de bel. Jug. c. 21.; Cic. *pro* P. Sectio. n. 42. de invent. l. 1. n. 2.; Diod. l. 1. p. 11. 12. 52. 100. l. 5. p. 387.; Strab. l. 4. p. 306. l. 11. p. 787. l. 13. p. 885.; Horat. ſerm. l. 1. ſat. 3. v. 99. & ſeq.; Hygin. fab. 143.; Juv. ſat. 15. v. 151. &c.; Stob. ecl. phyſ. l. 1. p. 18.; Macrob. *in* ſomn. Scip. l. 2. c. 10. p. 153.; Martini hiſt. de la Chine, l. 1. p. 18. 19.; Let. edif. t. 26. p. 64. 65.; Hiſt. des Incas, t. 1. p. 12. &c. p. 189. & 197. Acoſt. hiſt. des Ind. l. 7. c. 2. See alſo les mem. de l'acad. des inſcript. t. 9. mem. p. 203.

[f] Herod. l. 4. n. 18. 102.-106.; Ariſt. de rep. l. 8. c. 4.; Diod. l. 5. p. 355.; Strab. l. 5. p. 458.; Arrian. perip. mar. eryth. p. 177.; Plin. l. 4. ſect. 26. p. 218. l. 6. ſect. 26. & 35. l. 7. ſect 2. *init*. Pauſ. l. 10. c. 22.; Sext. Empiric. Pyrrhon. Hyp. l. 3. n. 24. p. 178. 179.

[g] Voyage de V. le Blanc, p. 144. 145. 157; Hiſt. nat. de l'Iſland. t. 2. p. 21. 236. 244. 252. 266.; Hiſt. des iſles Marianes, p. 44. 51. 53.; Lettr. edif. t. 2. p. 177. t. 5. p. 278. t. 10. p. 193. t. 25. p. 3-4-8-77-201.; N. relat. de la France equinox, p. 235.; Hiſt. gen. des voyages, t. 1. p. 170. & 197. t. 2. p. 308. Voyage de Frezier, p. 54. & 66.; Rec. des voyages au Nordt, t. 8. p. 403.

As to the arts and ſciences, there is no doubt, but ſome families preſerved themſelves from that barbarity and ignorance which ſucceeded the confuſion of languages, and the diſperſion of mankind. The moſt uſeful and neceſſary diſcoveries were never entirely loſt. The precious ſeeds of theſe were preſerved by the families who remained in the plains of Shinar, and the adjacent countries, where mankind had been firſt planted after the flood. Neither were theſe branches of knowledge altogether forgotten by thoſe colonies who took up an early fixed reſidence: for example, thoſe who ſettled in Perſia, Syria, and Egypt. By their means, the ſeveral parts of human knowledge were preſerved, propagated, and improved. But all the reſt of mankind, excepting theſe few families, I repeat it again, led the life of ſavages and barbarians. The ancient ſtate of the human race may very well be compared to that of the Cyclops, that is to ſay, the ancient inhabitants of Sicily, as repreſented by Homer[l].

"The Cyclops," ſays this poet, "know no laws. Each "governs his family, and rules over his wife and chil"dren. They trouble not themſelves with the affairs of "their neighbours, and think not themſelves intereſted in "them. Accordingly, they have no aſſemblies to deliberate "on public affairs. They are governed by no general laws "to regulate their manners and their actions. They neither "plant nor ſow. They are fed by the fruits which the earth "produces ſpontaneouſly. Their abode is on the ſummits "of mountains, and caverns ſerve them for a retreat[m]." Be-

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[i] Joſh. c. 24. v. 2. & 14. [k] Gen. c. 31. v. 19. & 30. c. 35. v. 2. & 4.

[l] Thucyd. l. 6. n. 2.; Bochart has very clearly proved, that the people to whom the Greeks gave the name of Cyclops, inhabited the weſtern part of Sicily. Chan. l. 1. c. 30. p. 619.

[m] Odyſſ. l. 9. v. 106. & ſeq.

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hold a lively picture of the manner, in which almoſt all the families of the world lived immediately after their diſperſion.

This ſavage unſociable life could not be of long continuance with regard to a great part of mankind. So many motives concurred to induce families to aſſociate and mingle with each other, that ſeveral of them muſt have united very early. This were the proper place to inquire in what manner this reunion of mankind was brought about. But as no certain monuments are now remaining of theſe firſt tranſactions, and as there is no end of forming conjectures and hypotheſes, we ſhall not enter into any diſcuſſion concerning the origin of theſe firſt ſocieties. Let us confine our inquiries to thoſe ſtates which were formed in that period on the conſideration of which we are juſt going to enter, and let us ſee what was the moſt ancient form of government.

PART I.

From the deluge to the death of Jacob, a ſpace of about 700 years.

BOOK I.

Of the origin of laws and government.

THE reunion of families, by whatever means it was brought about, could not have taken place but by an agreement of wills on certain general objects. When we view ſociety as the effect of unanimous concord, it neceſſarily ſuppoſes certain covenants. Theſe covenants imply conditions. It is theſe conditions which are to be conſidered as the firſt laws, by which ſocieties were governed. Theſe, alſo, are the origin of all the political regulations which have been ſucceſſively eſtabliſhed.

It was not neceſſary, that either the firſt covenants, or the conditions on which they were founded, ſhould be expreſs. It was ſufficient, in many caſes, that they were tacitly underſtood. Such were, for example, the rule not to injure each other; — that of being faithful to our engagements; — not to rob another of his lawful poſſeſſions; — That the ſon ſhould be heir to his father; — That he who would diſturb ſociety, be reſtrained, *&c.* There was no need of any particular ſolemnities in eſtabliſhing ſuch rules and maxims as theſe. They derive their origin from thoſe ſentiments of equity and juſtice which God has ingraven on the hearts of all men. They are taught us by that internal light, which enables us to diſtinguiſh between right and wrong: dictated by that voice of nature, which will make itſelf be heard, or will alarm the ſoul with tormenting remorſe as often as its dictates are diſobeyed.

We are not therefore to conſider the firſt laws of ſociety, as the fruit of any deliberation, confirmed by ſolemn and premeditated acts. They were naturally eſtabliſhed by a tacit conſent, a kind of engagement to which men are naturally very much inclined. Even political authority was eſtabliſhed in this manner, by a tacit agreement between thoſe who ſubmitted to it, and thoſe who exerciſed it.

This kind of tacit agreement was alſo the origin of thoſe CUSTOMS, which, for a long time, were the only laws known among mankind. Ancient authors produce examples of nations who knew no other laws. Modern travellers do the ſame. The Lycians had no written laws, but were governed entirely by cuſtoms [a]. In the Indies, from time immemorial, their judgments reſted only on certain uſages tranſmitted from father to ſon [b]. To this day, we cannot diſcover that there are any written laws at Mazulipatan [c], without ſpeaking of many other nations, which, even at this time, have no other laws than thoſe of cuſtom [d]. It was the ſame thing among the ancients [e]. Theſe early cuſtoms or uſages ſerved them for rules and precedents in their deciſions; and theſe cuſtoms were founded only upon certain compacts, by which men tacitly bound themſelves to each other at the reunion of families. Theſe are, I repeat it, the conditions annexed to theſe covenants, which we ought to regard as the firſt laws.

But theſe firſt laws, the only ones known at the commencement of ſociety, were not ſufficient to preſerve the peace, or ſecure the tranquillity of mankind. They were neither ſufficiently known, diſtinct, nor comprehenſive.

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[a] Heraclid. Pont. de polit. verbo λυκίων.

[b] Strabo, l. 15. p. 1035.; Let. edif. t. 14. p. 326. 327. 328.

[c] Rec. des voy qui ont ſervi à l'établiſſment de com. des Indes, t. 4. p. 392.

[d] Ibid. p. 309.; Jour. des ſcav. Mars 1675. p. 45. 46.; Meurs des ſauvages, t. 1. p. 501.; Hiſt. Mar. iſles, p. 51.; Hiſt. nat. de l'Iſlande, t. 2. p. 195. 244.; Hiſt. gen. des voy. t. 3. p. 245. 246. t. 6. p. 8.; Voy. Hud. bay. t. 2. p 95.

[e] Plato de leg. l. 3. p. 806. A.

Their authority muſt have been very arbitrary. It was proportioned to the uſe which every one made of his reaſon; and we know but too well, that man, left to himſelf, is more apt to liſten to his paſſions, than to reaſon and equity. There was alſo equal danger in the application and execution of theſe primitive laws.

In the ſtate of nature, every man was the judge and avenger of the wrongs he imagined he had received. It muſt have often happened, that the perſon injured, exceeded all the bounds of equity in the reparation he exacted. Very often, too, individuals were not ſtrong enough to put the law in execution. Theſe natural laws, therefore, could contribute but weakly to the peace and happineſs of ſociety. There was, indeed, one common law, but there was no common judge, acknowledged as ſuch, and appointed to apply it to particular caſes. Beſides, no body was inveſted with ſufficient authority and power to put it in execution. It is no wonder then, that the law being without force, and ill executed, ſhould be itſelf a ſource of the greateſt inconveniencies.

Theſe defects and imperfections of primitive ſociety, muſt have been productive of much diſquiet and trouble. Accordingly men did not derive the ſame advantages from their firſt eſtabliſhments, as they have done from thoſe which have been formed in ſucceeding ages. Fear and neceſſity brought ſome families together; but how licentious muſt men have been, who knew ſo little of the ſocial duties, as did the deſcendents of Noah after their diſperſion! The moſt important care of a ſociety, even in its moſt imperfect ſtate, is that of its own preſervation. The miſeries to which the firſt aſſociations of mankind found themſelves expoſed, ſoon put them upon ſeeking out methods to remedy and prevent them.

Man was created free and independent; but reaſon and experience ſoon convinced him, that he could not enjoy peace, ſecurity, or even liberty, if every individual was allowed to follow the dictates of his own caprice and paſſion. Man then diſcovered, that, for his own intereſt, he ought to reſign the unlimited exerciſe of his will; and that it was neceſſary for the good of the whole, that one part of ſociety ſhould be ſubject to another. It is this conviction that induced families, when they formed themſelves into ſtates, voluntarily to eſtabliſh a real inequality, under conditions which reſtrained its exceſs. From this principle aroſe the different forms of government to which nations have ſubmitted.

The firſt form of goverment mentioned in hiſtory, is the monarchical. This, without doubt, was the moſt ancient and the moſt univerſally eſtabliſhed. The ſcriptures atteſt it [f]. The moſt ancient nations ſpoken of by Moſes, the Babylonians, Aſſyrians, Egyptians, Elamites, thoſe who dwelt on the banks of Jordan, and in Paleſtine, were all ſubject to kings. Profane hiſtory agrees perfectly with the ſacred in this particular [g]. Homer always exalts the prerogatives of royalty, and the advantages of ſubordination [h]. This poet ſeems even to have had no idea of any other form of government. During that long ſeries of ages of which the Chineſe boaſt, they were all along governed by kings [i]. They cannot form any notion of a republic [k]. The ſame may be ſaid of all the eaſtern nations [l]. We may add too, that the moſt ancient republics, ſuch as Athens, Rome, &c. were monarchies at firſt.

It is not difficult to diſcover, why the idea of monarchical government was the firſt that preſented itſelf to the minds of men. When they reſolved to eſtabliſh ſome order in ſociety, it was more natural and obvious to range themſelves under one chief, than under many. Beſides, kingly power bore an exact reſemblance to the authority which fathers originally enjoyed over their children: they were, in theſe early times, the heads and legiſlators of their own family. We ſee an example of this authority, in the puniſhment adjudged to Thamar, by

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[f] Gen. c. 10. v. 10. 1 Sam. c. 8. v. 20.

[g] Sanchon. ap. Euſeb. praep. evang. p. 36.; Plato de leg. l. 4. p. 829. E. in Critia, p. 1103.; Ariſt. de rep. l. 1. c. 2. l. 3. c. 15.; Polyb. l. 6. *init.*; Beroſ. ap. Syncell. p. 307.; Cicero de leg. l. 3. n. 2. de offic. l. 2. n. 12.; Sal. de bel. Cat. n. 1.; Diod. l. 1. p. 12.; Dion. Hal. l. 5. p. 336.; Juſtin. l. 1. *init.* Pauſ. l. 9. c. 1.; Hiſt. des Incas, t. 1. *init.*

[h] Iliad. l. 2. v. 204. & ſeq.

[i] Mart. hiſt. de la Chin. l. 1. p. 15.

[k] Le Compt. mem. Ch. t. 2. let. 9. p. 3.

[l] Chardin, t. 3. p. 212.; Rec. des voy. Holland. t. 3. p. 28.

Judah her father-in-law[m]. Both Plato and Homer ſpeak of the authority of parents over their children in ancient times[n]. The Gauls were ſovereigns in their own houſes, having power of life and death over their wives, children, and ſlaves[o]. In China, fathers govern their families with deſpotic power[p]. It appears, then, that monarchical government was formed upon the plan of the paternal[q]; with this only difference, that the firſt monarchs were not deſpotic. Deſpotiſm was introduced with great empires, and the firſt kingdoms were but very ſmall. Let us now inquire, how, and by what motives royalty was eſtabliſhed.

In the different ſocieties that were formed after the diſperſion, there were found ſome perſons, who diſtinguiſhed themſelves by their ſuperior ſtrength, prudence, and courage. Thoſe who poſſeſſed theſe talents, and theſe qualities, which were then more neceſſary than ever, ſoon gained the public eſteem and confidence. Their conſtant ſervices pleaded for them. They acquired inſenſibly a kind of authority. Neceſſity, joined to eſteem, engaged men to put themſelves under their direction. Let us conſult the annals of all nations, and obſerve the manner in which hiſtory relates the origin of monarchies, and we ſhall ſee, that the firſt ſovereigns owed their elevation to the ſervices they had rendered to the ſociety[r]. Holy ſcripture on one ſide, and profane hiſtory on the other, preſent us with two facts, perfectly applicable to the origin of the different ſovereignties eſtabliſhed in early times.

Moſes informs us, that Nimrod was the firſt who began to be a mighty one in the earth[ſ]. The ſacred hiſtorian immediately adds, that Nimrod was a mighty hunter[t]. Every circumſtance inclines us to think, that it was to this talent he owed his greatneſs. The earth, for ſome ages after the flood, was covered with foreſts, full of wild beaſts[u]. Men were obliged to be conſtantly on their guard againſt their attacks[x]. A man who poſſeſſed the talents neceſſary to deſtroy them, muſt then have been held in high conſideration. Nimrod, by his hunting, ſo beneficial to his country, became famous. Very ſoon the people gathered about him; being often at their head, he accuſtomed them inſenſibly to receive and obey his orders; and by the tacit conſent of thoſe who had voluntarily put themſelves under his conduct, he remained their ſovereign. In was probably in this manner, that he founded the firſt kingdom of which we have any knowledge. With a view to confirm his authority, he built cities[y], there to collect and fix his new ſubjects[z].

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[m] Gen. c. 38.

[n] Odyſſ. l. 9. v. 107. & ſeq.; Plato de leg. l. 3. p. 806.

[o] Caeſar de bell. Gall. l. 6. n. 17.

[p] Le Comt. mem. t. 2 let. 9. p. 37. 38.

[q] This idea is expreſſed in the name of Abimelech, one of the firſt ſovereigns mentioned in hiſtory. *Abimelech* ſignifies in Hebrew, *My father king*. Le Clerc's notes on Heſiod. Theog. p. 80.

[r] Ariſt. de rep. l. 3. c. 14. p. 357. l. 5. c. 10. p. 403. A.; Cicero de leg. l. 3. n. 2. de offic. l. 2. n. 12; Juſtin. l. 1. c. 1. *init.*

[ſ] Gen. c. 10. v. 8.

[t] Ibid. v. 9.

Herodotus furniſhes us with a fact, which, though of a much later date, may enable us to judge of the motives which determined ſocieties to eſtabliſh monarchy.

This hiſtorian tells us, that the Medes, after having ſhaken off the yoke of the Aſſyrians, were ſome time without any form of government. They ſoon became a prey to the moſt horrid exceſſes and diſorders. There was among them a man of great prudence and wiſdom, named Dejoces. The Medes very often applied to him to decide their differences. Dejoces heard their complaints, and determined their diſputes. His wiſdom and diſcernment ſoon gained him the eſteem of the whole country where he lived. They came even from other parts of Media to implore his aſſiſtance. But at laſt being oppreſſed by the multiplicity of affairs, which increaſed every day, he retired. Confuſion and diſorder inſtantly returned. The Medes held a public aſſembly, in which it was unanimouſly agreed, that the only means of puting an end to their calamities, was, to elect a king. The choice fell upon Dejoces with one voice [z].

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[u] Such was America when firſt diſcovered.

[x] Plato in Protag. p. 224. E.; Plut. t. 2. p. 86. D. See le Clerc B. U. t. 6. p. 265.

[y] Gen. c. 10. v. 10.

[z] I am ignorant of the reaſons why almoſt all who ſpeak of Nimrod, repreſent him as a cruel and haughty tyrant. The ſcriptures do not paint him in ſuch odious colours. It no where ſays, that he uſurped the royalty by violence. I ſuſpect Joſephus as the author of that ill character Nimrod has at preſent. That hiſtorian has thought proper to paint this prince in the blackeſt colours. Antiq. l. 1. c. 4.

But it is generally known, what credit is due to the authority of Joſephus, when not ſupported by ſcripture.

This fact, and the example of Nimrod, ſet the origin of the firſt ſovereignties in a very clear light. Such events as thoſe we have mentioned, or ſomething of a like nature, probably gave birth to monarchical government every where. For the two principal functions of a monarch have always been, to diſpenſe juſtice to his ſubjects, and march at their head in time of war. We ſee this very diſtinctly expreſſed in the motives mentioned by the Iſraelites to Samuel when they demanded a king [a].

Crowns then originally were elective. But this cuſtom could not continue long. Mankind muſt ſoon diſcover the advantages of a ſon's ſucceeding to his father's kingdom. Every thing pleaded in favour of the young prince. The veneration they had entertained for his father; the noble ſentiments and wiſe inſtructions, it was to be preſumed, he had received from him: theſe, and many other motives would determine nations in general to ſubmit to the ſons of their deceaſed monarchs. They would foreſee, too, the inconveniencies annexed to the neceſſity of electing a new maſter on every vacancy of the throne. Whatever was the cauſe, it appears, that the moſt ancient monarchies were hereditary. If we read the hiſtory of all thoſe ſtates ſubject to this kind of government, we ſhall conſtantly ſee the ſon ſucceed his father. Among the Babylonians, Aſſyrians, Egyptians, Indians, Chineſe, Arabians, Atlantes, among the Greeks and the Gauls, it was the ſon [b], and commonly the eldeſt ſon [c], who always aſcended the throne after the death of his father.

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[z] L. I. n. 97. & ſeq.

[a] *Et erimus nos quoque ſicut omnes gentes, & judicabit,* &c. 1 Sam. c. 8. v. 20. The beſt writers of antiquity have always declared in favour of monarchy. Herod. Plat. Ariſt. Xenoph. Iſocrat. Cicer. Sen. Tacit. Plut. have regarded the monarchical government as the moſt advantageous and moſt perfect, which men have ever invented; and it is to be remarked, that moſt of theſe writers lived in republics.

The dominions of the firſt monarchs were but of ſmall extent. In ancient times, every city had its own king, who, more attentive to defend than to enlarge his dominions, confined his ambition within the limits of his own territory [d]. Sacred and profane hiſtory teſtify alike, how narrow were the bounds of ancient kingdoms. They cannot have been conſiderable, even in the eaſt, which was the nurſery of mankind. In the days of Abraham, there were five kings in the vale of Sodom [e]; that is, as many almoſt as there were villages. This is ſtill more evident from the great number of kings the Iſraelites found in Paleſtine. Joſhua defeated thirty-one [f]. Adoni-bezek, who died but a little after Joſhua, owned, that, in his wars, he had deſtroyed threeſcore and ten kings [g]. Egypt was originally divided into ſeveral ſtates [h]. The different provinces which at preſent compoſe the empires of China and Japan, anciently formed ſo many ſovereignties [i]. For how many ages was Greece divided into a great number of petty ſtates [k]? A few families aſſembled in one town, under one chief, were the whole ſubjects of one of theſe firſt monarchs. Africa, America, and a part of Aſia, preſent us at this day with a picture of theſe ancient times. We find a great number of ſovereigns in a ſmall extent of country. Every little diſtrict has it own particular king [l].

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[b] Sanchon. ap. Euſeb. p. 36. B.; Plat. in Critia, p. 1103.; Herod. l. 1. n. 7.; Ariſt. de republ. l. 3. c. 14. p. 357.; Polyb. l. 6. *init.*; Apollod. l. 2. *init.*; Strab. l. 15. p. 1036.; Pauſ. l 2. c. 34.; Syncell. p. 167. 171.; Mart. hiſt. de la Chin. l. 2. p. 89. 101.; Hiſt. des Incas, t. 1. p. 40. 365. 243.; Acoſt. hiſt. Ind. fol. 289. R.

[c] Sanch. ap. Euſeb. p. 36. B.; Herod. l. 7. n. 2.; Plat. in Critia, p. 1103. 1104. in Alcib. prim. p. 441.; Diod. l 5. p. 383. 386.; Hiſt. des Inc. t. 1. p. 40. t. 2. p. 68.; Let. edif. t. 14. p. 390.

[d] *Intra ſuam cuique civitatem regna finiebantur.* Juſt. l. 1. c. 1. *init.*

[e] Gen. c. 14. v. 8.

[f] Joſ. c. 12. v. 24.

[g] Jud. c. 1. v. 7.

[h] Euſeb. praep. evan. l. 9. c. 27. p. 432. A.; Marſh. p. 25. 29.

[i] Anc. relat. Ind. Chin. p. 186.; Journ. des ſcav. Juin. 1688. p. 15. Juill. 1689. p. 319.

[k] See part 2. l. 1.

[l] See Bib. raiſon. t. 1. p. 52.; Mer. de Fran. Nov. 1717. p. 82.; Hiſt. gen. des voyag. t. 1. p. 93.; Recueil des voy. qui ont ſervi à l'établiſſement de la com. des Ind. Hol. t. 2. p. 493.

As to the authority of theſe ancient monarchs, it was contracted enough. It appears, from ſeveral monuments, that, by the conſtitution of theſe firſt kingdoms, the people had a great ſhare in the government. Affairs of importance were canvaſſed and regulated in the general aſſemblies of the nation. Hemor, King of Sechem, did not agree to the propoſitions made him by the ſons of Jacob, till he had communicated them to his ſubjects, and obtained their conſent[m]. Profane hiſtorians agree with the ſcriptures in repreſenting the authority of the firſt ſovereigns as very limited[n]. The kings of Egypt were ſubjected to very ſevere and troubleſome reſtrictions[o]. The power of the firſt kings of Greece was not much more extenſive than their territories[p]. The firſt kings of Mexico were far from being abſolute[q]. We may compare theſe ancient monarchs to the Caciques and other petty ſovereigns of America[r], who have hardly any authority, but in what relates to war, alliances, and treaties of peace.

But whatever idea we form of theſe firſt ſovereigns, it is ſtill certain, that ſociety owes its firſt ſettlement, and regular form to monarchy. It was monarchy which put an end to thoſe direful diſorders to which the world was at firſt expoſed. Men ſoon felt the neceſſity of ſetting up ſome general rule, to control the different orders of the ſtate, and ſet bounds to the ſpirit of independence ſo natural to man. They obtained this end by intruſting the forces and rights of the ſociety in the hands of one chief. In this manner was eſtabliſhed in every political ſociety, that ſupreme power and authority which conſtitute their ſtrength and ſecurity. From this form of government is derived the ſecond ſpecies of laws of which I am going to ſpeak.

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[m] Gen. c. 34. v. 20. & ſeq.

[n] Dion. Hal. l. 5. p. 336. 337. ; Diod. l. 1. p. 80. l. 3. p. 177. ; Tacit. de morib. Germ. c. 7. 11.

[o] Infra.

[p] See part 2. b. 1.

[q] Acoſta, l. 7. fol. 333. v.

[r] See l'Eſcarbot. hiſt. N. Fran. p. 852. 853.

CHAP. I.

Of the eſtabliſhment of poſitive laws.

THE deſign of the ſeveral ſocieties in ſetting up a chief, and ſubmitting to his authority, was to remedy the weakneſs and inſufficiency of natural laws. The authority of the firſt ſovereigns, too limited in its origin, could not remedy the abuſes which were to be corrected. It was found neceſſary for the good of ſociety, to intruſt them with more extenſive powers, to enable them to make particular regulations for improving and perfecting the firſt rude eſtabliſhments. Theſe regulations have juſtly obtained the name of laws [ſ]. I call them POSITIVE LAWS, becauſe the deſign of them is clear and pointed. Theſe have removed the inconveniencies of primitive ſociety. The ſovereign, by publiſhing his laws, inſtructs each individual in the rules he is to follow. No one is at liberty to judge in his own cauſe. It is the province of the ſovereign to execute the laws; and having in his hands all the force of the ſtate, he is enabled to add weight to his decrees, and puniſh thoſe who violate or infringe them [t]. Laſtly, it is his buſineſs to be watchful that the laws receive due obedience.

Theſe poſitive laws were but very few at firſt, and reſpected only the moſt general intereſts of ſociety. But before I enter upon any explanation, it will be proper to make ſome obſervations on the manner in which mankind lived originally.

There was a time, when mankind derived their whole ſubſiſtence from the fruits which the earth produced ſpontaneouſly, from their hunting, fiſhing, and their flocks. This kind of life obliged them often to change their abode, conſequently they had no dwelling-place nor ſettled habitations. Such

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[ſ] *Arbitria principum pro legibus erant.* Juſt. l. 1. *init.*; Diod. l. 1. p. 18. l. 5. p. 387.; Dion. Hal. l. 10. p. 627.; Plut. t. 2. p. 356. A.; Tacit. an. l. 3. n. 26.; Euſeb. chron. l. 2. p. 65.; Stob. ecl. phyſ. l. 1. p. 124.; Syncel. p. 125. D.; Pom. juriſ. ench. de origine jur. l. 2. ſect. 1.

[t] Princip. du droit pol. t. 1. c. 3.

was the ancient manner of living, till agriculture was introduced; in this manner ſeveral nations ſtill live, as the Scythians, Tartars, Arabians, Savages, &c.

The diſcovery of agriculture introduced a different ſet of manners. Thoſe nations who applied to that art, were obliged to fix in a certain diſtrict. They built and inhabited cities. This kind of ſociety having need of many more arts than were neceſſary for thoſe who neglected or were ignorant of agriculture, muſt of conſequence need alſo many more laws. This obſervation leads us to diſtinguiſh two different orders in poſitive laws, ſuch as are proper to all kinds of political ſociety in general, and ſuch as are peculiar to a ſociety which follows agriculture.

Laws which are equally proper for all kinds of political ſociety, are ſuch as are the foundation and bond of it, without which no form of government can ſubſiſt. Of this kind are the laws touching the diſtinction betwixt *meum & tuum*, that is to ſay, right of property; PENAL LAWS; thoſe which ſettle the formalities of marriage; in a word, all laws relating to thoſe reſpective obligations which mankind contract as members of one ſociety. I am inclined to place in this rank the eſtabliſhment of ſolemn and public worſhip. This, under one form or other, has had a place in all civilized nations. Such is the firſt claſs of poſitive laws.

In the ſecond claſs I place ſuch laws as ſuppoſe the invention of ſeveral arts, and by conſequence commerce, and the frequent change of property. Theſe laws are no more than an extenſion or unfolding of the former. Natural law, or, to ſpeak with more preciſion, rational equity, is the foundation of both; but it is by the Civil law of each country that theſe laſt are digeſted and reduced to form. This form muſt neceſſarily vary, according to the climate, genius, and particular circumſtances of different nations. It is in this the diſtinguiſhing characteriſtic of theſe two ranks of poſitive laws conſiſt. The different manner in which this laſt claſs of poſitive laws has been modified in each country, conſtitutes the civil law of that country[a]. Under this name are comprehended all thoſe laws which regulate the common tranſactions of civil life, and the particular intereſts of the different members of ſociety. Such are the laws concerning inheritances, ſucceſſions, ſales, contracts, &c.

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[a] Inſt. § de jure nat. gen. & civ.

Nations which live by hunting, fiſhing, and their flocks, cannot have many laws; being often obliged to remove from one place to another, they know no property in land, one of the principal ſources of civil laws. The greateſt part of mankind, as I have before obſerved, lived in this manner in the firſt ages after the diſperſion. Conſequently civil laws were not the firſt in order of time. Beſides, theſe could not take place, till ſome time after the eſtabliſhment of thoſe regulations which properly conſtitute the being and polity of a ſtate. This firſt claſs of poſitive laws, then, which form the very eſſence of political ſociety of every kind, fall firſt under our conſideration. We ſhall defer the regular examination of the origin of civil laws, till we come to ſpeak of the laws and principles of government eſtabliſhed by thoſe nations who applied themſelves to agriculture.

ARTICLE I.

Of the firſt rank of Poſitive Laws.

IT is impoſſible to unfold the order and ſeries of the firſt political inſtitutions with any certainty. All that has been ſaid on that ſubject amounts to nothing more than mere conjecture. Neceſſity, occaſioned by the crimes and diſorders which every where prevailed, rather than deep reflection or foreſight, put mankind upon making laws. It is highly probable, that moſt of the laws eſſential to the ſupport of ſociety, were eſtabliſhed much about the ſame time. Regulations concerning property, — the puniſhment of crimes, — the ceremonies of marriage, — and the eſtabliſhment of public worſhip, were, as we imagine, the firſt objects which employed the thoughts of legiſlators.

The origin of the rights of property are as ancient as the origin of ſocieties. As ſoon as families united, the diſtinction of MEUM and TUUM took place. But theſe rights of property were very indeterminate, and ill underſtood, till after the eſtabliſhment of political government. It then became neceſſary to introduce a certain order, and a certain regularity, into the affairs of ſociety. This was provided for by regulations for ſecuring to every man the peaceable enjoyment of his poſſeſſions. Theſe different regulations gave birth to civil law. But, as I have already ſaid, the civil code of the firſt ſocieties muſt have lain in narrow bounds. Deſtitute of the greateſt part of the arts, they had no poſſeſſions but their cattle, ſome furniture, and ſome few utenſils of indiſpenſable uſe. Being unacquainted with the principal objects for which civil laws were inſtituted, they had no need of many formalities to confirm their engagements and terminate their diſputes.

If we have ſufficient reaſon for ſaying that the firſt political ſocieties had but few civil laws, we have ſtill better reaſon to affirm that the caſe was very different with regard to penal laws. The eſtabliſhment of theſe laws was abſolutely neceſſary to reſtrain individuals from reſuming the exerciſe of their natural rights.

Unhappily all men are not alike inclined to honeſty and virtue. The deſign of political ſociety is to ſecure the tranquillity of all its members. In order to this, it was neceſſary to take meaſures for ſuppreſſing all attempts to diſturb the public peace. Experience has diſcovered, that the ſupport of ſociety depends entirely on the COERCIVE POWER, which by exemplary puniſhments intimidates the wicked, and balances the allurements of pleaſure, and the ſtrength of the paſſions. Hence the neceſſity and the eſtabliſhment of penal laws. From what yet remains of the laws of the moſt ancient nations, we may remark, that they chiefly relate to crimes, and ſuch crimes as are moſt common among a barbarous people; as theft, murder, rapes, rapine, in a words, all kind of wrongs committed by violence [x].

It is not poſſible to give any very particular account of the ſeveral ſpecies and qualities of the moſt ancient penal laws. The law of retaliation is, in this kind, the moſt ancient of all thoſe which have been eſtabliſhed. It is founded on the pureſt and moſt natural equity. The *lex talionis*, was very ſtrictly obſerved by the Iſraelites [z]. I am perſuaded Moſes in this only conformed to the practice of the primitive times. The ſavages to this day follow with great exactneſs the law of retaliation [a]. It was authoriſed alſo by the legiſlators of Greece and Rome [b]. It is true, that, in many circumſtances, the execution of this law might have its inconveniencies, and even ſome impoſſibilities. For this reaſon, particular puniſhments, and even compenſations were afterwards invented, by way of reparation to the party injured. We find ſome examples of this among the Iſraelites [c]; and we ſhall meet with more when we come to treat of the ancient laws of Greece [d].

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[x] See l'hiſt. du droit Franc. dans vol. 1. de l'inſtitut. au droit Franc. attribué à Argou.

In general, we may conclude, that the ancient penal laws were very ſevere. We ſee in very early times, Thamar condemned to be burnt for adultery [e]. We find the ſame ſeverity in the Egyptian laws, which we ſhall ſpeak of by and by. Thoſe of China are another proof of this [f]. The ſame may be ſaid of the laws of Moſes. Blaſphemy [g], idolatry [h], profaning the ſabbath [i], witchcraft [k], homicide [l], adultery [m], inceſt [n], rapes [o], crimes againſt nature [p], ſmiting or curſing father or mother [q], were puniſhed with death, nay with the moſt cruel kinds of death [r]. It was ſaid too of the laws of Draco one of the firſt legiſlators of Athens, that they were written with blood [ſ]. The laws of the twelve tables among the Romans were full of very cruel inſtitutions. We find there the puniſhment of burning; theft puniſhed with death, &c. and almoſt always capital puniſhments [t]. Amongſt the Gauls, criminals were burnt alive in honour of the gods [u].

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[z] Exod. c. 21. v. 23. 24. 25.

[a] Voy. de Coreal. t. 1. p. 208.; Voy de J. de Lery, p. 272.; Hiſt. gen. des voy. t. 4. p. 324. 325.

[b] Pauſ. l. 1. c. 28. p. 70.; A. Gel. l. 20. c. 1. p. 863.; Calmet, comment. t. 2. p. 291.

[c] Exod. c. 21. v. 22. 30. c. 22. v. 3. 6.

[d] Part 2. b. 1. c. 3. art. 8.

[e] Gen. c. 38. v. 24.

[f] Hiſt. gen. des voy. t. 6. p. 234. & ſeq.

[g] Levit. c. 24. v. 11. &c.

[h] Exod. c. 22. v. 20.; Levit. c. 19. v. 4.

[i] Num. c. 15. v. 32. & ſeq.; Exod. c. 31. v. 14. 15.

[k] Exod. c. 22. v. 18.; Levit. c. 20. v. 27.

[l] Exod. c. 21. v. 12.; Levit. c. 24. v. 17.

[m] Levit. c. 20. v. 10.

[n] Ibid. v. 12. 14. 17.

[o] Deut. c. 22. v. 25.

[p] Levit. c. 18. v. 21. 23. 29. c. 20. v. 13. 15. 16.

[q] Exod. c. 21. v. 15. 17.; Levit. c. 20. v. 9.

[r] Burning, ſtoning, &c. See F. Calmet. t. 2. p. 280. 281.

[ſ] Plut. in Solone, p. 87. F.

Laws ought not only to protect the lives and promote the peace of the members of ſociety in general, they ought alſo to conſult the happineſs of individuals, to provide for their ſubſiſtence, to prevent occaſions of diſcord, to form their hearts and minds by inſpiring them with ſuch ſentiments as may promote the harmony and peace of families. I remark in all civiliſed nations, two things which may be conſidered as the great foundation and ſupport of political ſociety. The firſt of theſe is, the ceremonies which accompany the union of a man with a woman, which fix and regulate the ties of marriage and the ſtate of children; the ſecond, the ceremonies of public worſhip ſolemnly paid to the Deity. Theſe two have been found, by legiſlators, the wiſeſt and moſt effectual means for the ſupport and good government of ſtates.

The mutual inclination of the two ſexes towards each other, is the principle which continues and perpetuates ſociety. But this inclination, if it is not kept within certain bounds, is the ſource of many evils. Before the eſtabliſhment of political ſociety, the two ſexes in their commerce obeyed no other dictates but thoſe of brutal appetite. Women belonged to the man who ſeized them firſt [x]. They afterwards became the property of any one who had the addreſs to ſeduce them, or the ſtrength to carry them off. The children who ſprung from this irregular intercourſe, ſcarce ever knew who were their fathers. They knew only their mothers, for which reaſon they always bore their name [y]. Beſides, no perſon taking any care to bring them up, they were often expoſed to periſh.

Such diſorder muſt have been extremely hurtful. It was

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[t] See l'hiſt. de la juriſprud. Rom. p. 143. [u] Caeſ. de Bel. Gal. l. 6. c. 15.

[x] *Quos venerem incertam rapientes more ferarum,*
Viribus editior, caedebat, ut in grege taurus.
Hor. l. 1. ſat. 3. v. 109.

[y] Sanch. ap. Euſ. p. 34. D.; Varro ap. Aug de civit. Dei l. 18. c. 9.; Nicol. Damaſ. verb. Γαλακτοφάγοι and Λύκιοι ap. Valeſ. excerpt. p. 510. 517.; Solin. c. 30. *init.* p. 55.

The traces of the primitive cuſtoms remained long in ſome ancient nations. See Herod. l. 1. n. 173. Herac. Pont. de polit. verbo Λυκίων.; Apol. Rod. Argon. l. 1. v. 229. &c.

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a matter of the greateſt conſequence to introduce regularity and tranquillity into the commerce of the ſexes, and to provide for the maintenance and education of children. This deſirable end could not be obtained but by ſubjecting the union of the ſexes to certain reſtriction[z]. The laws of marriage have bridled the moſt unruly of paſſions. They have done more; by pointing out the degrees of conſanguinity which render ſome alliances unlawful, they have taught men to know and to reſpect the rights of nature. Theſe laws, in a word, by aſcertaining the rights of children, have ſecured a ſucceſſion of ſubjects to the ſtate, and given a regular and ſettled form to ſociety. No kind of laws have contributed more than theſe to preſerve peace and harmony amongſt mankind.

The inſtitution of the laws and rules of marriage is very ancient. The ſcriptures furniſh us with ſeveral examples of the high regard paid in the firſt ages to an eſtabliſhment ſo neceſſary to the peace and preſervation of ſociety [a].

Profane hiſtory equally confirms this truth. All the moſt ancient traditions agree in aſcribing the regulations concerning the union of the ſexes to the firſt ſovereigns. Menes, eſteemed the firſt king of the Egyptians, eſtabliſhed the law of marriage amongſt that people [b]. The Chineſe give the honour of this inſtitution to Fo-hi their firſt ſovereign [c]. The Greeks allow that they owed this ſalutary eſtabliſhment to Cecrops [d], their firſt legiſlator [e]. Fable whoſe origin is traced back to the earlieſt times, gives us no inſtance of any man's having more than one wife of right. Jupiter, Oſiris, Pluto, &c. had each but one lawful wife. The Cretans pretended to know the place where the nuptials of Jupiter and Juno had been ſolemnized. They celebrated yearly their anniverſary, by a faithful repreſentation of thoſe ceremonies, which, as they had learned from tradition, had been obſerved on that occaſion [f].

We ſee too by the laws of all civilized nations, how much legiſlators have had at heart the encouragement of marriage. Moſes decreed that a new married man ſhould be exempted from going to war, and from every public charge, for one year [g]. Thoſe who married amongſt the Peruvians, were freed from all taxes the firſt year of their marriage [h].

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[z] *Concubitu prohibere vago, dare jura maritis.* Hor. de art. poet. v. 398.

[a] Gen. c. 12. v. 19. c. 20. v. 9. c. 26. v. 10.

[b] Diod. l. 1. p. 17. Palaeph. ap. Ch. Alex. p. 45. D; Cedren. p. 19.; Suid. voce Ἡφαίϛος t. 2. p. 85.

[c] Extr. des hiſt. Ch.; Let. ed. t. 26. p. 65. Martin. hiſt. de la Chin. l. 1. p. 31.

[d] See part. 2. c. 3. art. 1.

[e] Ibid.

[f] Diod. hiſt. l. 5. p. 388.

Ancient legiſlators carried their views ſtill farther. In order to ſtrengthen the ties of marriage, and to render that union ſtill more ſacred, they decreed very ſevere puniſhments to ſuch as ſhould attempt to violate the rights or diſturb the harmony of the matrimonial ſtate. In all ages and amongſt all civilized nations adultery has been proſecuted [i]. Legiſlators were too much enlightened not to perceive how deſtructive that crime was to the peace, the order, and intereſts of ſociety. They regarded rapes and robberies in the ſame light [k]. They believed they could not uſe too many precautions to reſtrain a paſſion, whoſe conſequences would have infallibly occaſioned the total ruin of ſociety. Let us now proceed to conſider the inſtitution of religious ceremonies.

The eſtabliſhment of a ſolemn and public worſhip has without doubt contributed moſt of all to civilize mankind, and to ſupport and ſtrengthen ſocieties. The exiſtence of a ſupreme being, ſovereign judge of all things, and abſolute maſter of all events, is one of the firſt truths which affects the mind of an intelligent creature, who is willing to make uſe of his reaſon. From this heart-felt ſentiment ariſes the natural idea of having recourſe in calamities to that almighty being, of invoking him in preſſing dangers, and of endeavouring to obtain the favour and protection of this omnipotent ſovereign of the univerſe, by external expreſſions of ſubmiſſion and reſpect. Religion then is prior to the eſtabliſhment of civil ſociety, and independent of all human conventions.

But depravity of heart, blindneſs of mind, and eſpecially ſuperſtition, have too often darkened and perverted thoſe ideas that men ought to have of the Deity; they have more than once indiſcriminately led them to other beings, who they fooliſhly fancied could protect them, and to whom of conſequence they paid religious worſhip. As ſoon as ſeveral families had ſubmitted to one form of political government, they found it would be very dangerous and inconvenient, to permit every particular perſon to chuſe according to his own fancy the form and object of his worſhip. They endeavoured therefore to unite all the members of the ſociety in one fixed and uniform mode of public worſhip. "No particular perſon," ſay the Roman laws, "ſhall have any new or ſtrange gods, or worſhip them even in ſecret, unleſs the worſhip of them has been "permitted by public authority [l]." This principle has been acknowledged by all civilized nations, they ſaw very clearly that it was impoſſible for ſociety to ſubſiſt without ſome form of public worſhip. Into whatever country we tranſport ourſelves, we ſhall every where meet with altars, ſacrifices, feſtivals, religious ceremonies, prieſts, temples, or places ſolemnly and publicly conſecrated to the Deity [*].

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[g] Deut. c. 24. v. 5.

[h] Hiſt. des Incas, t. 2. p. 100.

[i] Gen. c. 38. v. 24. Levit. c. 20. v. 10. Job c. 31. v. 10. 11.; Diod. l. 1. p. 89. 90.; Ælian. var. hiſt. l. 13. c. 21. Mar. hiſt. de la Chin. l. 1. p. 31. Accoſt. nat. des Ind. l. 6. c. 18.; Conq. du Mexiq. t. 1. p. 564.

[k] Deut. c. 22. v. 25.; Diod. l. 1. p. 89.; Hiſt. des Inc. t. 1. p. 242.

We learn from the remains of ancient hiſtory, that the firſt ſovereigns inſtituted the ceremonies of religion, and regulated the public worſhip in each ſtate [m]. We even ſee, that originally, and for a long time after, the two offices of king and prieſt were united in one perſon. The holy ſcripture ſaith it [n]. Homer alſo, and other ancient authors affirm this very clearly [o].

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[l] Cicero de leg. l. 2. n. 8.

[*] The moſt general rules and propoſitions may have ſome exceptions. I ſhall be told perhaps that both ancient and modern authors mention ſome nations who have no ſigns of public worſhip.

But it muſt be remarked, That theſe nations are very few, not above five or ſix at moſt, both in the old and new world. 2. They are neither large nor populous. Now, I aſk, if the practice of ſo ſmall a number of men, compared with the whole human race, can deſtroy the general maxim, That ſociety cannot ſubſiſt without an exterior form of religion, a maxim whoſe truth is confirmed by the practice and example of all nations ſavage or civilized. Beſides, is the fact very certain, that there were or now are, nations entirely without religion? Have the writers or travellers quoted for this purpoſe dwelt long enough amongſt theſe people, to know with certainty they had no ſort of worſhip?

[m] Diod. l. 1. p. 18. 19.; Hygin. fab. 143.; Dion. Hal. l. 2. p. 87. 90.; Tacit An. l. 3. n. 26.; Plut. t. 2. p. 356. A. p. 1125. D.; Stob. eclog. phyſ. l. 1. p. 124.; Hiſt. des Incas, l. 1. c. 21. p. 67.

[n] Gen. c. 14. v. 18. 1 Reg. c. 13. v. 9. 2 Reg. c. 6. v. 13. 18. 20. c. 24. v. 25.

[o] Herod. l. 6. n. 56.; Plat. in Polit. p. 350. B.; Xenoph. Cyrop. l. 3. p. 63. De rep. Laced. p. 544.; Demoſth. in Neaeram, p. 873. B.; Cicero de divinat. l. 1. n. 40.

It were unneceſſary to inſiſt further upon this point. Let us rather ſpeak a few words of certain particular cuſtoms which ſprung from the eſtabliſhment of theſe firſt poſitive laws.

The inſtitution of the rights of property, and the laws of marriage, neceſſarily introduced certain cuſtoms and uſages which may be regarded as the foundation and origin of all civil laws. In ſtrictneſs I ſhould not ſpeak of theſe till I come to the article of thoſe laws. However, as theſe uſages are a natural conſequence of political laws, as they prevail in all formed ſocieties, and preceded civil laws, which were deſigned to regulate them; that we may follow the footſteps of thoſe inſtitutions which one after another brought the body-politic to a ſtate of perfection, it is proper to ſpeak of them in this place. Theſe particular cuſtoms are ſuch as were originally obſerved in matrimonial contracts, — ſucceſſions, — making and aſcertaining agreements and obligations, — and, in a word, pronouncing and atteſting judicial ſentences.

Cuſtom will now have it, that a wife ſhall bring a certain portion to the huſband of which he is to be the uſufructuary during the marriage. It was quite the contrary in the moſt ancient times. The huſband was obliged in ſome ſort to purchaſe his wife, either by ſervices performed to her father, or preſents made to herſelf. Abraham charges Eliezer with ſeveral magnificent preſents when he ſends him to demand Rebecca for Iſaac [p]. Jacob ſerved Laban ſeven years to obtain Rachel [q]. Sechem demanding Dinah the daughter of Jacob, ſays to the ſons of this patriarch, "Aſk me never ſo much dowery and "gift, and I will give according as ye ſhall ſay unto me; "but give me the damſel to wife [r]." This cuſtom ſubſiſted a long time in many countries. Homer ſpeaks of it [ſ]. It was in uſe amongſt the ancient inhabitants of India [t], Greece [u], Spain [x],

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n. 40.; Virgil. Æneid. l. 3. v. 80.; Diod. l. 2. p. 159.; Dion. Halicarn. l. 2. p. 87. l. 4. p. 269.; Titus Livius, l. 2. n. 2.; Servius ad Æneid. l. 3. v. 80.; Martini hiſt. de la Chine, t. 1. p. 59. 89.; Mem. du P. le Comte, t. 2. lettre 9. p. 16.; Hiſt. des Incas, t. 2. p. 48.; Lettres édif. t. 19. p. 387. 483.; Hiſt. du Japon par Kaempfer, praef. p. 30. l. 1. p. 99. l. 2. c. 1. p. 228. t. 2. 3. *init.*

[p] Gen. c. 24. v. 10.---53. [q] Gen. c. 29. v. 18. & ſeq.

[r] Gen. c. 34. v. 12.

[ſ] We ſhall ſpeak of it in part 2. b. 1. in the article, Of Greece.

[t] Strabo, l. 15. p. 1036. [u] See part 2. b. 1. c. 3. art. 8.

[x] Strabo, l. 3 p. 251.

Germany[y], Thrace[z], Gaul[a]. At this day the people of China[b], Tartary[c], Tonquin[d], Pegu[e], Turky[f], Tranſilvania[g], the Moors of Africa[h], and the ſavages[i], buy their wives.

The diviſion of ſucceſſions is a matter of great importance in ſociety; of greateſt moment indeed to people who cultivate the ground, but ſtill of ſome conſequence to all. Accordingly we find ſome regulations made in this matter in the remoteſt ages[k]. Fathers ſeem then to have had the abſolute power of diſpoſing of their effects. The children which Abraham had by his other wives beſides Sarah, had no ſhare in his ſucceſſion. He excluded them, and gave the whole to Iſaac. That patriarch contented himſelf with giving ſome gifts to his other children in his lifetime[l]. Jacob beſtowed on Joſeph above his brethren, all the land he had conquered from the Amorites[m]. The author of the book of Job obſerves, that that holy man gave his daughters an equal ſhare with his ſons in his inheritance[n].

There were, however, even at that time, ſome prerogatives annexed to ſeniority. The hiſtory of Jacob and Eſau affords ſufficient proof of this[o]. The rights of ſeniority alſo furniſhed Laban with an excuſe for his impoſing upon Jacob, by ſubſtituting Leah in the place of Rachel whom he had promiſed him[p]. The beſt writers of antiquity inform us, that, by the univerſal cuſtom of all civilized nations, the eldeſt ſon had authority over his brothers [q].

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[y] Tacit. de morib. Germ. c. 18.

[z] Heraclid. Pont. de polit. voce Θρακῶν.

[a] See La loi Salique, art. 46. & les formules de Marculphe.

[b] Hiſt. gén. des voyag. t. 6. p. 144. 145.; Lettr. édif. t. 14. p. 145.

[c] Marc Paul, l. 1. c. 49. 55.; Hiſt. gén. des voyag. t. 7. p. 230.

[d] Voyag. de Dampier, t. 3. p. 55.

[e] Rec. des voyages de la compagnie des Ind. Holland. t. 3. p. 73.; Voyag. d'Ovington, t. 2. p. 297.; Lettr. édif. t. 25. p. 463.

[f] Hiſt. gén. des voyag. t. 2. p. 629.; Ibid. t. 4. p. 590.

[g] Obſervat. de Belon, l. 3. c. 17.; Voyag. de la Boulaye, p. 411.

[h] Caſaub. in not. *ad* Strab. p. 251. (5.)

[i] Moeurs des ſauvages, t. 1. p. 565.; Rec. des voyag. au Nord, t. 5. p. 17.; Voyag. de Frezier, p. 66.; Lettr. édif. t. 20. p. 123.

[k] See Gen. c. 48. v. 6.

[l] Gen. c. 25. v. 5. & 6. See Calmet *loco cit.*

[m] Gen. c. 48. v. 22.

[n] Job c. 42. v. 15. See le comment. du P. Calmet.

[o] See Gen. c. 49. v. 3.

[p] Gen. c. 29. v. 26.

The invention of certain uſages and means of atteſting and authenticating the principal tranſactions of civil life, may be reckoned amongſt the moſt ancient political inſtitutions.

It has been found neceſſary in all ages, that the more important affairs of ſociety, ſuch as, bonds of mutual obligation, ſales, marriages, ſentences of judges, the quality and property of the citizens, &c. ſhould have a certain degree of notoriety, in order to ſecure their execution and authenticity. To this end, certain forms have been ſettled for drawing theſe ſorts of deeds, certain perſons authoriſed to receive them, public repoſitories erected to preſerve them, that they might be conſulted upon occaſion. For all civil ſociety depends upon the ſecurity of thoſe engagements which the members of it enter into with each other.

It was a long time before mankind found out the art of painting words, and rendering them permanent and durable *. All deeds were then verbal, yet ſtill it was neceſſary to authenticate and aſcertain them. The method then uſed was to tranſact them in public and before witneſſes [r]. When Abraham bought a cave of Ephron to bury Sarah, the purchaſe was made in preſence of all the people [ſ]. Homer, in his deſcription of the ſhield of Achilles, repreſents two citizens pleading concerning the mulct due for a homicide. The cauſe is tried in public. He who had ſlain the man maintains that he had paid the mulct. The relation of the dead declared that he had not received it, and both of them, ſays the poet, appealed to the depoſition of witneſſes for determining their diſpute [t]. There are ſome nations at this day, who, not having any kind of writing, make uſe of the like methods for authenticating their deeds and contracts [u].

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[q] Iliad. l. 15. v. 165.: Herod. l 7. n 2.

* See what is ſaid of the origin of writing, *infra.* b. 2. c. 6.

[r] Hom. Iliad. l. 18. v. 499. &c.; Dion. Halicarn. l. 2. p. 131.; Syncell. p. 102.

[ſ] Gen. c. 23. [t] Iliad. l. 18. v. 499. &c.

[u] Hiſt. gén. des voyag. t. 3. p. 407.

Perhaps alſo they ſupplied their want of writing by other inventions. We know of ſome nations whoſe conduct gives us an idea of the uſages which probably prevailed in ancient times. Theſe nations confirmed their ſales, purchaſes, loans, &c. by certain pieces of wood cut in tallies. They cut them in two; the creditor keeps one, the debtor the other. When the debt or promiſe is diſcharged, each gives up his piece of wood [x]. Conſidering their way of life in theſe remote ages, their contracts could not have many clauſes, and ſuch methods would be ſufficient to authenticate all their deeds.

The place of diſpenſing juſtice was originally at the gates of cities, that is to ſay, in preſence of all the people. Such was the practice in the days of Job [y]. Moſes alſo makes mention of this ancient cuſtom [z], which, according to Homer ſubſiſted, in the heroic ages [a]. This practice was owing to their ignorance of the art of writing. They had no other means of authenticating their ſecurities, but by pronouncing them in public. Beſides, as civil laws were hardly known in theſe ages, their trials were very ſhort and ſummary. The whole depended on the depoſition of witneſſes [b]; they heard theſe, and pronounced accordingly. This manner of diſpenſing juſtice is ſtill obſerved in ſeveral countries [c].

Let us mention on this occaſion the methods anciently uſed in promulgating and aſcertaining laws.

I have remarked already, that it was long before mankind knew the art of writing; but they very early invented ſeveral methods, to ſupply, in a good meaſure, that want. The method moſt commonly uſed was, to compoſe their hiſtories in verſe, and ſing them. Legiſlators made uſe of this expedient to conſign and hand down to poſterity their regulations. The firſt laws of all nations were compoſed in verſe, and ſung [d]. Apollo, according to a very ancient tradition, was one of the firſt legiſlators [e]. The ſame tradition ſays, that he publiſhed his laws to the ſound of his lyre [f], that is to ſay, that he had ſet them to muſic. We have certain proof that the firſt laws of Greece were a kind of ſongs[g]. The laws of the ancient inhabitants of Spain were verſes, which they ſung[h]. Tuiſton was regarded by the Germans as their firſt lawgiver. They ſaid, he put his laws into verſes and ſongs[i]. This ancient cuſtom was long kept up by ſeveral nations[k].

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[x] Hiſt. gén. des voyag. t. 7. p. 334.; Marco Polo, l. 2. c. 41. See alſo Le rec. des voyag. au Nord, t 8. p. 402.

[y] C. 9. v. 7. [z] Gen. c. 23. v. 18. [a] Iliad. l. 18. v. 497. & ſeq.

[b] Ib. v. 501. [c] Hiſt. gén. des voyag. t. 5. p. 8.

[d] Plato in Min. p. 567. B.; Ariſt problem. § 19. problem. 28.

[e] Strabo, l. 9. p. 646.; Suid. voce Νόμοι κιθαρ. t. 2. p. 630.

Suid. ibid.

It was not enough to make laws; it was alſo neceſſary to provide for their execution, and take proper meaſures for terminating all diſputes which might ariſe amongſt the citizens. The adminiſtration of juſtice is the foundation and ſupport of ſociety. In the firſt ages every father of a family was the natural judge of the diſputes which aroſe among his children. But when many families were united, it became neceſſary, in order to decide the conteſts which aroſe between family and family, to chuſe one common judge who ſhould at the ſame time have ſufficient impartiality to make a juſt application of the law, and ſufficient power to enforce its execution. Political government hath provided ſuch an arbiter, poſſeſſed of ſupreme authority over all the members of the ſtate.

In ſtates where the government was intruſted in the hands of one chief, that chief at firſt diſtributed juſtice in perſon. Monarchs executed this important office, as long as the number of their ſubjects was not conſiderable; but when theſe became too numerous, it was found neceſſary to chuſe certain perſons of known probity and wiſdom, to whom the ſovereign committed a ſhare of his authority, to diſpenſe juſtice to his ſubjects. The holy ſcriptures countenance the conjecture we have now propoſed concerning the origin of judges. We ſee Moſes oppreſſed with the multiplicity of affairs, choſe a certain number of wiſe men to diſpenſe juſtice to the people. Theſe judges terminated of themſelves common and ordinary matters; but were obliged to give an account to Moſes of things of greater moment[l].

The reſpect which has been paid, in all ages and countries, to the miniſters of religion, was the reaſon that the adminiſtration of juſtice was originally committed to them. The moſt ancient nations mentioned in hiſtory, knew no other judges but their prieſts. Theſe were arbiters in the moſt important affairs, finally determined all diſputes, and inflicted ſuch puniſhments as they thought proper [m]. The authority which religion naturally gave to prieſts, was not perhaps the only motive which at firſt determined mankind to make choice of them to be the arbiters of all their diſputes, and judges of all their crimes. The high opinion which men have always had of their abilities and wiſdom, no doubt, contributed to this choice. However this may be, this ancient cuſtom of committing the diſpenſation of juſtice to the miniſters of religion, is not quite aboliſhed to this day. We hear of ſeveral nations where it ſtill ſubſiſts [n].

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[g] See part 2. b. 1. c. 3. art. 8. [h] Strabo, l. 3. p. 204.

[i] See Kuhnius ad Ælian. var. hiſt. l. 2. c. 39. note 1.

[k] Ariſt. problem. § 19. probl. 28.; Ælian. var. hiſt. l. 2. c. 39. See alſo part 2. b. 1. c. 3. art. 8.

[l] Exod. c. 18.

ARTICLE II.

Of the ſecond rank of poſitive laws, that is to ſay, of civil laws.

WHat we have hitherto ſaid of the origin and eſtabliſhment of laws, is alike applicable to every kind of political ſociety. Let us now proceed to conſider thoſe laws which owe their eſtabliſhment and origin only to nations who applied to agriculture. This ſecond claſs of laws is very near the firſt in date, and in the neceſſity of its eſtabliſhment. Agriculture, by giving riſe to arts and to commerce, by a neceſſary conſequence very ſoon gave birth to civil law; and agriculture was known to many nations in very ancient times. I ſhall produce the proofs of this in the next book. The only point we have under conſideration at preſent, is the effects of agriculture on government and laws.

The culture of the earth requires great care and great labour. The nations which embraced this way of life, were obliged to have recourſe to induſtry for the ſuccours they ſtood in need of. Theſe inquiries gave birth to many arts, theſe arts produced commerce, commerce multiplied and diverſified the intereſts of the different members of ſociety. There was a neceſſity for regulations on all theſe ſubjects. It is thus agriculture, by its dependencies, gave occaſion to the eſtabliſhment of a great number of laws. Theſe laws neceſſary to govern a people who cultivate the ground, compoſe the body of civil juriſprudence.

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[m] See le comment. du P. Calmet, t. 2. p. 430. t. 3. p. 5. & 659.; Caeſar de bello Gall. l. 6. c. 13.; Dion. Halicarn. l. 2. p. 132.; Strabo, l. 4. p. 302. l. 1. p. 43.; Tacit. de morib. Germ. c. 7. & 11.; Ælian. var. hiſt. l. 14. c. 34. See Perizonius's notes, *loco cit.*

[n] Voyge de Pyrard, c. 14. p. 144. 145.; Hiſt. gén. des voyag. t. 4. p. 396.; Rec. des voyag. au Nord, t. 8. p. 403.; Chardin, t. 6. p. 16.

The firſt law ſuch a people would eſtabliſh, would be one for aſſigning and ſecuring to each family a certain portion of ground. When huſbandry was unknown, all lands were common. There were no boundaries nor land-marks *; every one ſought his ſubſiſtence where he thought fit †. By turns they abandoned, and repoſſeſſed the ſame diſtricts, as they were more or leſs exhauſted. But after agriculture was introduced, this was not practicable. It was neceſſary then to diſtinguiſh poſſeſſions, and to take neceſſary meaſures, that every member of ſociety might enjoy the fruits of his labours. It was highly reaſonable that he who had ſowed ſhould reap, and not ſee another ſeize the profits of his toil and care. Hence, the laws concerning the property of lands, the manner of dividing and poſſeſſing them. Theſe objects have always very much employed the thoughts of legiſlators. Homer informs us, that, in theſe remote ages, it was one of the firſt cares of thoſe who formed new eſtabliſhments, to divide the lands amongſt the members of the colony [o]. The Chineſe ſay, that Gin-hoand, one of their firſt ſovereigns, divided the whole lands of his empire into nine parts; one was deſtined for dwellings, and the other eight for agriculture [p]. We ſee alſo by the hiſtory of Peru, that their firſt Incas took great pains, in dividing and diſtributing the lands amongſt their ſubjects [q].

It was not enough to eſtabliſh and regulate the diviſion of lands, it was alſo neceſſary to ſuppreſs and prevent uſurpations. Ancient legiſlators took all poſſible precautions for

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* ---------- *Non fixus in agris,*
Qui regeret certis finibus, arva lapis. Tibul. l. 1. eleg. 3. v. 43.

† *In medium quaerebant.* Virgil. Georg. l. 1. v. 127.

[o] Odyſſ. l. 6. v. 10. [p] Martini hiſt. de la Chine, l. 1. p. 18.

[q] Acoſta hiſt. des Ind. Occident. fol. 295. 296.; Hiſt. des Incas, t. 1. p. 48. 183.

this purpoſe. With a view to reſtrain avidity, and obviate all contention, they obliged every perſon to fix the boundaries of his grounds by land-marks, either ſuch as nature had ſet up, or others of the moſt ſolid and durable materials. This practice is very ancient. We find it alluded to very plainly in Geneſis [r]. It was alſo practiſed in the days of Job. He puts thoſe who remove land-marks at the head of his liſt of wicked men [ſ]. Moſes expreſsly forbids the Iſraelites to do this; and from the words he uſes, it appears, the uſe of land-marks was known long before his time [t]. Profane authors repreſent this practice as no leſs ancient. Homer ſpeaks of it as a cuſtom of the higheſt antiquity [u]. Virgil refers the inſtitution of it to the age of Jupiter [x], that is to ſay, to the moſt remote times. Legiſlators decreed very ſevere puniſhments to thoſe who removed land-marks. Numa ordered this crime to be puniſhed with death [y]. Politicians intereſted religion in a matter of ſo much moment to ſociety, that ſuch as the laws of men could not reſtrain might be overawed by the fear of the gods [z].

Agriculture then gave riſe to the holding lands in property; but this property muſt neceſſarily change at the death of each poſſeſſor. The toil and labour which the cultivation of land requires, gave men a ſtrong attachment to what coſt them ſo much fatigue. Hence the deſire of tranſmitting the poſſeſſion and enjoyment of it to thoſe they held moſt dear. It became neceſſary, therefore, to eſtabliſh laws and regulations concerning the manner of diſpoſing of inheritances, either when a man left ſeveral children, when he left no poſterity, or when he had a mind to diſpoſe of it in a particular manner. Thus the diviſion of lands gave riſe to rights and to juriſprudence [a].

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[r] C. 49. v. 14. [ſ] C. 24. v. 2.

[t] *Non aſſumes et transferes terminos proximi tui, quos fixerunt priores in poſſeſſione tua.* Deut. c. 19. v. 14. [u] Iliad. l. 12. v. 421. l. 21. v. 405.

[x] *Ante Jovem* -------
Nec ſignare quidem aut partiri limite campum fas erat. Georg. l. 1. v. 125.

[y] Dion. Halicarn. l. 2. p. 133; Feſtus, voce *termino*, l. 18. p. 586.

[z] See les mém. de l'acad des inſcript. t. 1. m. p. 50.; Plato de leg. l. 8. p. 914.

[a] *Itaque ex agrorum diviſione inventa ſunt jura.* Macrob. Saturnal. l. 3. c. 12. p. 413.

The laws relating to that matter make up a principal part of the civil code.

We ſhould never have done, if we were to enumerate all the laws which agriculture has occaſioned. It ſuffices to ſay once for all, that we muſt never loſe ſight of the diſcovery of that art, and thoſe which depend upon it, when we deſire to diſcover the origin of civil law. Further, it is not poſſible to give any clear account of the firſt civil laws of the moſt ancient nations. We have not a ſufficient number of facts or particulars of the hiſtory of theſe remote ages. What may be affirmed with moſt probability, is, that civil law at firſt was very imperfect. Juriſprudence was not formed into any regular ſyſtem but by a long courſe of time. No one legiſlator could foreſee all events. Uncommon caſes and new circumſtances gave occaſion to the eſtabliſhment of the greateſt part of civil conſtitutions. Whenever a new caſe aroſe, a new law was made.

Agriculture, as I have ſaid already, gave birth to the greateſt part of arts, arts produced commerce, and commerce neceſſarily occaſioned a great number of regulations: it even became neceſſary, in ſucceeding times, to extend or reform theſe regulations in proportion as commerce grew more extenſive; as induſtry advanced to perfection, as commodities were repreſented by new ſigns, as new diſcoveries were made, and as abundance introduced luxury and magnificence.

It was long before men found out metals, and the manner of working them; but when this diſcovery was made, it produced many new arts, and greatly advanced thoſe which had been known before. Theſe were often ſources of new laws. The introduction of theſe ſame metals into commerce as a common price of all commodities, neceſſarily occaſioned new regulations, and new ordinances. Acquiſitions and obligations are the natural conſequences of commerce and of induſtry, and of the adminiſtration and of the circulation of money. Hence the origin of certain forms for drawing and atteſting deeds, by which the members of ſociety bound and obliged themſelves to each other. Hence the neceſſary eſtabliſhment of public officers, charged with the care of receiving and regiſtering theſe deeds.

Add to this, that wars have very often changed the face of empires. Conqueſts have introduced new notions of things, new manners, new deſigns, and even new arts. Of conſequence, the political ſyſtem of ſtates muſt have varied very often according to the different circumſtances and various poſitions of the people; and the legiſlature was neceſſarily affected with all theſe variations.

Beſides, nothing but length of time could diſcover the abuſes and inconveniencies attending certain laws. Theſe laws muſt have been mended or repealed, and others ſubſtituted in their room. The writers who alone could at this day inſtruct us in the juriſprudence of the ancients, could not poſſibly have an exact knowledge of theſe matters. They knew nothing of the nations they ſpeak of, till long after the times we are examining, and then the civil code of theſe nations acquired a fixed and ſettled form. The hiſtorians of antiquity could not ſpeak with certainty of any laws but ſuch as were in force in the times in which they writ. Now, though the epocha of many of theſe ancient laws is unknown to us, we ought not to preſume that all thoſe whoſe authors we are unacquainted with, were the works of the firſt legiſlators. We may obſerve further, that the greateſt part of the writers of antiquity, in general, take very little notice of the juriſprudence and civil laws of ancient nations.

Let us not then fatigue ourſelves in ſearching what were the firſt civil laws. Let it ſuffice, that we know that all thoſe which in proceſs of time formed the civil code of nations, flowed either directly or indirectly from agriculture. Hiſtory, independent of all reflections, atteſts this in the moſt ſolemn manner. Let us run through the annals of all civilized nations; there we ſhall ſee, that civil laws took riſe at the ſame time with agriculture, and that one and the other eſtabliſhment was the work of the firſt ſovereigns. The Egyptians extolled the great ſervices Oſiris had done to mankind by the diſcovery of agriculture, and the eſtabliſhment of his laws [b]. The Greeks ſaid the ſame of Ceres [c]; the firſt people of Italy, of Saturn [d]; the ancient inhabitants of Spain, of Habis [e]; the Peruvians, of Manco-Capac [f]; the Chineſe pay the ſame honour to Yao [g].

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[b] Diod. l. 1. p. 17. 18.

[c] See part 2. l. 1. c. 3. art. 1.

[d] Ariſt. polit. l. 7. c. 10.; Macrob. Saturn. l. 1. c. 7. p. 217.

Let us remark by the by, how eſſentially neceſſary ancient legiſlators eſteemed agriculture to the ſupport of ſociety. We may judge of this, by the great pains they took to preſerve the enjoyment of it to their ſubjects. It is not poſſible to cultivate the ground without the aſſiſtance of animals. For fear the ſpecies of animals employed in labour ſhould fail, ancient laws forbade the killing any of theſe creatures on pain of death: this was one of the ancient laws of Greece [h], a law obſerved by many other nations [i]. The great reſpect of the ancients for the ox, ſo uſeful in tillage, is atteſted by all the writers of antiquity. To kill an ox was a capital crime [k]. Even at this day, in ſome countries, the ſame regard is paid to this animal, which renders ſuch great ſervices to mankind. By the laws of Ram, ſo much regarded in the Greater India, it is expreſsly forbidden to kill oxen [l]. At Madura this is a crime puniſhed with death [m]. In Syria they never eat beef, much leſs veal; they preſerve the cattle to till the earth [n]. In one of the French iſlands of America, they formerly forbade killing of oxen on pain of death, to encourage the breed of theſe animals [o]. It is probable, that it was for the ſame political reaſon that ancient legiſlators made laws to the ſame purpoſe [p]. Oxen were the only animals that were anciently employed in agriculture.

This conduct appears to me to have included another motive beſides that of ſecuring cattle for huſbandry. The firſt legiſlators had men to govern, ferocious and only juſt emerged from barbariſm. I do not doubt therefore, but thoſe legiſlators had a view of inſpiring their people with gentleneſs and compaſſion towards each other, by inſpiring them with theſe ſentiments towards animals. We find ſeveral laws amongſt the Iſraelites which ſeem to have been dictated from this motive. God in commanding to reſt on the ſeventh day, declares his intention to be, to give ſome relaxation to ſlaves and beaſts of labour [q]. He forbids maiming of animals, or muzzling the ox that treaded out the corn [r]. If an Iſraelite found a bird ſitting upon eggs or young, he was commanded to let the dam go [ſ]. Moſes is not the only legiſlator who has commanded the mild treatment of animals. We find examples of this kind in the laws of many other nations [t].

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[e] Juſtin. l. 44. c. 4. p. 745.

[f] Hiſt. des Incas, t. 1. p. 21. 31.

[g] Acad. des inſcript. t. 10. p. 391.

[h] We ſhall ſpeak of it in part 2.

[i] Nicol. Damaſc. apud Stob. ſerm. 42. p. 293.; Ælian. hiſt. animal. l. 12. c. 34.; Varro de re ruſt. l. 2. c. 5.; Plin. l. 8. c. 45. p. 472.; Porphyr. de abſtin. l. 2. p. 138.

[k] *Ab hoc antiqui*, ſays Varro, *manus ita abſtineri voluerunt, ut capite ſanxerint, ſi quis occidiſſet.* De re ruſt. l. 2. c. 5. See alſo Aratus, phoenom. v. 132.; Virg. georg. l. 2. v. 537.; Columell. l. 6. in prooem. p. 229; Plin. l. 8. c. 45. p. 472.

[l] Voyage de la Boulaye, p. 157.

[m] Lettres édif. t. 12. p. 93.

[n] Hieron. in Jovinian. l. 2. c. 6.; Mercure de France, Févr. 1727, p. 221.

[o] Lettres édif. t. 12. p. 93.

[p] Athen. l. 9. p. 375.

One of the moſt ſenſible and obvious effects of agriculture, is, that thoſe people who applied themſelves to it, were obliged to ſettle in a particular diſtrict. It has forced them to build houſes of ſolid materials, and near to each other, that they might be better enabled to give mutual aſſiſtance. It is thus that cities were formed. The firſt mentioned in hiſtory began in Chaldea, China, and Egypt, where the people had applied to agriculture from time immemorial. According to the beſt writers, the ſtudy of politics began with the building of cities [u]; and the foundation of cities gave birth to great empires. Accordingly we ſee that thoſe people who underſtood huſbandry, formed the firſt great and powerful ſtates. The Babylonian, Aſſyrian, and Chineſe empires aroſe in thoſe parts of Aſia where the cultivation of the ſoil had always been the chief occupation of the people. Egypt is at leaſt as ſtriking an example of it, to ſay nothing of the Greeks and Romans, to whom we may with good reaſon join the Mexicans and Peruvians in the new world. All theſe nations, by their ſkill in agriculture, were enabled to unite in conſiderable bodies in one place. They had the certain means of ſubſiſting. Hunting, fiſhing, and the fruits of the earth which grow ſpontaneouſly, cannot maintain a great number in little bounds. The nations therefore who have no other means of ſubſiſting but theſe, were forced to roam from place to place; they could never aſſemble in very great numbers, becauſe no country could then afford them ſubſiſtence. Beſides, theſe reſources are caſual, and might often fail them. Agriculture alone can at once ſupport a great number in one place, and enable them to lay up proviſions for the time to come. It is to the diſcovery and practice of this happy art we are indebted for all the ſweets of life.

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[q] Exod. c. 23. v. 12.

[r] Lev. c. 22. v. 24.

[ſ] Deut. c. 22. v. 6. 7.; Exod. c. 23. v. 9. See le comment. du P. Calmet, t. 1. p. 219. 221. 225. 226. t. 3. p. 429.

[t] See upon this ſubject a very remarkable law of an emperor of Japan. Apud Kaemp. hiſt. du Japon, t. 1. p. 364. See alſo part 2. l. 1. art. 8.

[u] Plato de leg. l. 3. & 6.

Let us finiſh this important ſubject with a few reflections on the unſpeakable advantages mankind derive from the eſtabliſhment of ſocieties. When we reflect how difficult it muſt have been to eſtabliſh, regulate, and ſupport the body-politic, we cannot help regarding the laws as the maſterpiece of human genius. But theſe, however excellent, would not have been ſufficient to ſecure the tranquillity and happineſs of mankind. The political art has employed an engine ſtill more powerful and more extenſive; it is perhaps of all the happy effects reſulting from the union of families, that which mankind have felt the moſt ſenſibly, and from which they yet draw the moſt frequent advantages. I am ſpeaking of thoſe two grand ſprings of human actions, of thoſe ſalutary prejudices which have ſo much force among all nations, and which often ſupply the place of laws, and even of virtue; *the love of glory, and the fear of ſhame.*

We find in all civilized countries, laws for the puniſhment of crimes againſt ſociety; but I know of no country which has decreed rewards to the exerciſe of the ſocial virtues, ſuch as generoſity, candour, humanity, diſintereſtedneſs, probity, decency of manners, &c.

I obſerve further, that there are certain vices, ſuch as lying, avarice, deceit, debauchery, indecency, ingratitude, &c. for which the law has provided no puniſhment. I even allow that theſe vices are in ſome ſort incapable of being puniſhed by the magiſtrate. Yet ſhould the ſocial virtues remain abſolutely without recompenſe, it were to be feared that few would be led to practiſe them. It were ſtill more hurtful to ſociety ſhould men be permitted to abandon themſelves with impunity to the vices I have mentioned. Manners and cuſtoms, founded on theſe tacit conventions, by which all ſocieties, as we have juſt ſaid, were united, have ſupplied and remedied this great defect of the laws.

Honour, that ſentiment ſo quick and delicate, is the work, the fruit of ſociety. Public and private intereſt have concurred to form it. The advantage and utility which ſociety found to reſult from certain ſentiments, and from certain actions, led them naturally to regard theſe ſentiments as the moſt precious attribute of human nature. By a neceſſary conſequence of theſe ſame motives, they found themſelves inclined to expreſs the higheſt eſteem and conſideration for the perſons poſſeſſed of theſe deſirable qualities. The ambition of obtaining this univerſal favour, affection, and eſteem, is a principle from which ſociety has reaped the greateſt benefits, a principle which has ſupplied the want of legal rewards for virtuous actions.

With reſpect to thoſe actions which are pernicious to good order and public tranquillity, though no particular puniſhment could be decreed by law, ſociety, upon the ſame principle, has equally provided that they ſhould not remain unpuniſhed. Cuſtom and opinion founded on the tacit conſent of all ſocieties, have in all times pronounced a ſentence of diſhonour and infamy on theſe vices; a ſentence not the leſs real or formidable that it was not preſcribed by any particular law, or pronounced by any magiſtrate; and to be ſenſible of all the efficacy of this ſentence, we need only reflect a moment on the ſovereign empire of cuſtom and opinion, and conſider how great is the extent of their power.

Now, if we examine what really happens in all countries, we ſhall find, that though there are no expreſs laws for rewarding the ſocial virtues, yet thoſe who practiſe them never miſs their reward, never fail to attract the public affection, eſteem, and admiration; rewards ſo much the more ſoothing, and ſo much the more powerful, as they are free and voluntary, and not the effect of any law. We ſee alſo that there are certain vitious actions which though not puniſhed by magiſtrates, are from eſcaping with impunity; they receive a real and heavy puniſhment, from the ſcorn, contempt, and indignation of the wiſeſt and beſt part of the ſociety. Theſe ſentences, I repeat it, though they proceed not from the legiſlative power, though they are not inveſted with the authority of the law, are not the leſs infallible in their effect, whether by recompenſing virtue, by giving thoſe who cultivate it all the diſtinctions which are capable of gratifying a rational ſelf-love, whether by puniſhing vice, by depriving the abandoned of the greateſt comforts of ſociety, and by the fear of reſtraining thoſe mean ſouls who can be deterred from vitious actions only by the dread of puniſhment.

Theſe are our thoughts in general concerning the eſtabliſhment of political ſociety. Let us now caſt our eye on thoſe nations moſt diſtinguiſhed in antiquity, and obſerve what was their ſtate and the form of their government in the ages which are the ſubject of this firſt part of our work.

ARTICLE III.

Of the laws and government of the Babylonians and Aſſyrians.

ASia, without queſtion, was civilized, before any other part of the world. There, Nimrod laid the foundation of the Babylonian, and Aſſur of the Aſſyrian empire, in the firſt ages after the flood. That of China cannot have been much leſs ancient. The regions at preſent known by the name of Perſia, muſt have been very early civilized; for their ſovereign Chedorlaomer *, in the days of Abraham, had ſubjected a great extent of country to his authority [x]. There were alſo at that time ſeveral ſtates formed in Paleſtine, and on the banks of Jordan, which are often mentioned by Moſes. The greateſt part of theſe ſtates, as it appears, were governed by kings. But we muſt ſatisfy ourſelves with theſe few general hints. The hiſtory of Aſia, for ſeveral ages, is almoſt entirely unknown to us. The ſacred books, where alone we could expect any information of ſuch remote events, leave us entirely in the dark.

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* This prince is called in ſcripture, King of the Elamites. This was the moſt ancient name of the firſt inhabitants of Perſia. See Bochart in Phaleg. l. 4. c. 10. p. 254.;

[x] Gen. c. 14.

Moſes having told us, that Nimrod fixed the ſeat of his empire at Babylon [y], deſcends no lower with his narration. In the days of Abraham, we find Amraphel King of Shinar mentioned in ſcripture. This prince was probably one of the ſucceſſors of Nimrod. But Moſes mentions him only by the by, to tell us that he was one of thoſe princes who entered into an alliance with Chedorlaomer, to aſſiſt him in ſubduing the kings of Paleſtine, who had ſhaken off his yoke [z].

The ſacred hiſtorian has obſerved the ſame ſilence as to the empire of Aſſyria; he contents himſelf with ſaying, that Aſſur left Babylon, and retired into that country ſince called Aſſyria, where he built Nineveh, and ſome other cities [a]. This fact may authoriſe us to make this the ephoca of the foundation of the Aſſyrian monarchy *. But Moſes gives us no further light into the hiſtory of that ſtate.

If we have recourſe to profane hiſtorians, the relations they give us are ſo obſcure, ſo oppoſite to one another, ſo involved in difficulties and contradictions, that it is impoſſible to form any certain judgment of the firſt events which happened in the empires of Babylon and Aſſyria. Modern writers have contrived ſeveral different ſyſtems for reconciling the contradictory narrations of ancient hiſtorians; but all theſe ſyſtems are liable to ſo many objections, that there is not one of them that can give us full ſatisfaction. But ſince it is neceſſary to chuſe, I ſhall fix upon that which appears to me the moſt probable, and moſt agreeable to the ideas I have formed of theſe very ancient times.

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[y] Gen. c. 10. v. 10.

[z] Ib. c. 14. v. 1.

[a] Ibid. c. 10. v. 11.

* Bochart, followed by ſome other commentators, pretends that the word *Aſſur* here ſignifies the name of a province, and that the paſſage is to be underſtood, as if it had been, *de terra illa* (Nimrod) *egreſſus eſt in Aſſyriam*, &c. "Nimrod leaving the plains of Shinar, went into Aſſyria, where he built "Nineveh," &c. Phaleg. l. 4. c. 12. p. 259. 260.

But this opinion is oppoſed by many famous writers. They have ſhown that this explanation is inconſiſtent with the very words of Moſes, and that we muſt take the word *Aſſur* as the Septuagint, Joſephus, and the Vulgate do, for the name of one of the ſons of Shem, and ſay, that Aſſur left the plains of Shinar, and formed a new eſtabliſhment on the banks of the Tigris, of which Nineveh was the capital. See Perizon. orig. Babyl. c. 4. I may add, that one of the greateſt maſters of the oriental languages has aſſured me, that in the verſions, Arabic, Chaldean, Syriac, Armenian, the word *Aſſur* is always in the nominative, and never in the accuſative, as the partiſans of the other opinion pretend.

It ſeems evident from the text of Moſes, that Babylon was ſomewhat more ancient than Nineveh. It appears alſo that theſe two cities were originally the capitals of two empires, each of which was governed by a diſtinct monarch. Theſe two ſtates continued ſeparate 440 years.

Hiſtory has not tranſmitted to us any particulars concerning the ſovereigns who reigned at Nineveh from Aſſur to Ninus: we know not ſo much as the names of theſe ancient monarchs [c]. The Aſſyrian empire, ſo famous in antiquity, like other early eſtabliſhments, was but ſmall in its beginnings [d]. Ninus was the firſt who attempted to enlarge its limits. He conquered the kingdom of Babylon, and laid the foundation of that formidable power which held Aſia in ſubjection for ſo many ages [e].

As to the Babylonians, it appears, that, after Nimrod, ſeven kings, Chaldeans by birth, reigned ſucceſſively at Babylon [f]. After them a family of princes originally from Arabia, ſeized the throne. They reckon ſix of theſe, who ſucceeded each other without interruption [g]. Under the laſt of theſe kings, Ninus, the ſovereign of Aſſyria, attacked and defeated the Babylonians, ſeized the perſon of their king, and by that conqueſt united the throne of Babylon to that of Nineveh [h]. This event happened 590 years after the flood, 1758 before the Chriſtian æra. I ſhall give my reaſons for this date in a few words.

I place (with the greateſt number of chronologers) the foundation of the kingdom of Babylon, by Nimrod, about the year 150 after the flood. Almoſt all the ancient hiſtorians agree, that this kingdom had ſubſiſted 440 years, under two diſtinct dynaſties, or families, at the time the Aſſyrians took Babylon [i]. The firſt of theſe dynaſties, whoſe kings were Chaldeans, poſſeſſed the throne 225 years [k]. The ſecond dynaſty which was originally from Arabia, reigned 215 years. The total duration of theſe dynaſties makes 440 years. If we add to theſe 440 the 150 years from the flood to the foundation of Babylon by Nimrod, the taking of Babylon by Ninus will fall in the 590th year after the flood, and conſequently in the 1758th year before the Chriſtian æra. After the taking of Babylon, the two monarchies formed but one ſtate, under the name of the Aſſyrian empire [l]. From thence the kingdom of Babylon was no more than a province of the Aſſyrian empire, to the time that the revolt of the Medes gave the Babylonians an opportunity of ſhaking off the Aſſyrian yoke, about 770 years before Chriſt [m].

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[c] Diod. l. 2. *init.*; Juſtin. l. 1. c. 1.

[d] Dion. Halicar. l. 1. c. 2.

[e] Diod. Juſt. *ſupra.*; Plato de leg. l. 3. p 809.

[f] Jul. African. ap. Syncell. p. 90.

[g] Id. ibid. & p. 92.

[h] Diod. l. 2. *init.*; Jul. African. ap. Syncell. p. 92. According to Diodorus, Babylon was not yet founded, when Ninus conquered Meſopotamia. The ſame author alſo ſays, that Nineveh was not built till after Ninus had ſubdued the Babylonians. It is proved from ſcripture, that he was miſtaken as to the date of the foundation of both theſe cities.

Ninus died after a reign of 52 years, which had been one continued train of victories and conqueſts. He left but one ſon by his Queen Semiramis. Ninias (for that was the name of this prince), at the death of his father, was too young to reign by himſelf. For this reaſon, Ninus committed the adminiſtration of the government into the hands of Semiramis [n].

Semiramis mounted the throne, and took the reins of government into her hands in the year 1741 before Chriſt *. This is one of the firſt examples in hiſtory of a throne filled by a woman, an example which has been followed in many countries. The Aſſyrian empire loſt nothing of its glory by being committed to the conduct of a woman. Semiramis has equalled, if not excelled the greateſt monarchs, in the luſtre of her reign. We ſhall not neglect, in its proper place, to give an account of the great actions aſcribed to this princeſs by antiquity; at the ſame time exploding the ſeveral prodigies and fictions which fable, taking advantage of the great diſtance of time, has mixed with her hiſtory.

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[i] Jul. Afric. ap. Syncel. p. 90.

[k] Id. ibid. & p. 92.

[l] Id. ibid.; Diod. l. 2. p. 114.

[m] See part 3. book 1. c. 1.

[n] Diod l. 2. p. 120.; Juſtin. l. 1. c. 1. & 2.

* The proof of this date is this. Diod. (l. 2. p. 114. & 120.) ſays that Babylon was the firſt conqueſt of Ninus. This prince ſpent but 17 years in his expeditions, and died immediately after; conſequently Semiramis mounted the throne 17 years after the taking of Babylon, which we have placed in the year 1758 before Chriſt.

Semiramis was ſucceeded by her ſon Ninias, who aſcended the throne in the year 1699 before the chriſtian æra*, and reigned 38 years[o]. From this prince to the revolt of the Medes, that is, for a ſpace of more than 800 years, we are ignorant of what happened in the Aſſyrian empire. The very names of the ſovereigns who ſwayed the ſceptre for ſo many ages, are not well known[p]. This obſcurity is commonly aſcribed to the great effeminacy into which it is pretended the ſucceſſors of Ninias were plunged[q]. I ſhall examine the ſolidity of this opinion in the ſecond part of this work. Let us now collect what the ancients have left us, concerning the conſtitution and form of government amongſt the Aſſyrians and Babylonians.

From the commencement of theſe two empires, the government was monarchical, and the crown hereditary[r]. But it would appear, that, to the reign of Ninus, theſe kingdoms had not much increaſed or improved. This prince has been conſidered by all antiquity, as the firſt monarch of Aſia who had any knowledge of politics, or the art of reigning[ſ]. It is to Ninus, without doubt, we muſt aſcribe the diviſion of the Aſſyrian empire into ſeveral provinces and governments; for we find this inſtitution fully eſtabliſhed in the reigns of Semiramis, and her ſucceſſors[t].

We may obſerve further, that in the Aſſyrian empire, the people were diſtributed into a certain number of tribes[u], and that profeſſions were hereditary; that is to ſay, children were not permitted to quit their fathers occupation, and embrace another[x]. We know not the time nor the author of this inſtitution, which from the higheſt antiquity prevailed almoſt over all Aſia[y], and even in ſeveral other countries[z].

The Aſſyrians had one practice with reſpect to marriage, worthy of our attention. This practice however had its foundation in that cuſtom, which, we have obſerved already, prevailed very early, and very univerſally, of the huſband's as it were purchaſing his wife [a].

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* Semiramis had reigned 42 years. Diod. l. 2. p. 134.; Juſtin. l. 1. c. 2.; Syncell. p. 96. 97.

[o] Syncel. p. 97.

[p] Diod. l. 2. p. 136.

[q] Juſtin. l. 1. c. 2.

[r] Diod. l. 2. p. 135.

[ſ] Juſtin. l. 1. c. 2.

[t] Diod. l. 2. p. 129. 135.

[u] Herod. l. 1. n. 200.; Strab. l. 16. p. 1082.

[x] Diod. l. 2. p. 142.

[y] See part 3. b. 1. c. 2.

[z] Ibid.

Every year they aſſembled in one place, all the young girls who were marriageable. The public crier put them up to ſale, one after another. The rich paid a high price for thoſe whoſe figure ſeemed to them the moſt agreeable. The money which was received for theſe, was beſtowed as a portion with the more homely whom no body would have fancied. For after they had diſpoſed of the moſt beautiful, the crier preſented ſuch as were leſs attracting, and aſked if any one would accept of ſuch an one with ſuch a ſum. The ſale proceeded by coming lower and lower, and ſhe was at laſt allotted to him who was willing to accept of her with the ſmalleſt portion. In this manner all the young women were provided with huſbands [b]. This very politic and ingenious method of facilitating and promoting marriages, was alſo practiſed by ſeveral other nations [c].

Beſides, they were not permitted to carry off the perſons they had purchaſed, till they had given ſufficient ſecurity that they would marry them. If at any time it happened, that the parties could not agree, the man was obliged to refund the money he had received [d]. It was likewiſe very expreſsly forbidden to uſe women ill, or to carry them into any foreign country [e]. Herodotus informs us, that this wiſe inſtitution was aboliſhed, towards the end of the Aſſyrian monarchy [f].

The Aſſyrians had ſeveral diſtinct councils, and ſeveral tribunals, for the regulation of public affairs. They reckon ſix of both kinds; three councils, and three tribunals, whoſe creation and authority were different. It would ſeem, that the three councils were created by the body of the people, to govern the ſtate in conjunction with the ſovereign. The firſt of theſe three councils was compoſed of officers, who had quitted the ſervice after having ſpent the beſt of their days in military employments. The nobility compoſed the ſecond. The old men formed the third[g]. We are not informed what were the particular functions of thoſe three councils.

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[a] Supra, p. 23.

[b] Herodot. l. 1. n. 196.; Ælian. var. hiſt. l. 4. c. 1.; Nicol. Damaſc. ap. Stob. ſerm. 42. p. 293.; Strab. l. 16. p. 1081.

[c] Pomp. Mela, l. 2. c. 2. p. 132. Mem. de Trev. Jan. 1708. p. 112.

[d] Herod. l. 1. p. 196. [e] Id. ibid. [f] Ibid.

The ſovereigns on their part had created three tribunals, to watch over the conduct of their people. The functions of the firſt of theſe tribunals was to diſpoſe of the young women in marriage, and puniſh adultery. The ſecond took cogniſance of theft; and the third of all acts of violence[h].

It muſt not be forgot, to the honour of the Babylonians, that they are acknowledged, by all antiquity, to have been the firſt who made uſe of writing in their public and judicial acts[i]; but at what period, is not known.

As to the politics and perſonal conduct of the ancient monarchs of Aſſyria, if we were to judge of them by the ſentiments of almoſt all the writers of antiquity, we could not deſpiſe their manner of governing too much. They accuſe Ninias of having ſet a bad example, which his ſucceſſors but too well imitated[k]. Without pretending to vindicate this prince from a ſhare of thoſe faults which the Aſiatics have always been accuſed of, the few hints which are left us concerning his adminiſtration, ſeem to me to preſent us with the model of a very wiſe and prudent government.

The great end which Ninias had in view, was to prevent all cabals which might endanger the ſafety of the ſovereign, or the tranquillity of the ſtate. No meaſures could be more wiſe and effectual to this end than thoſe which he purſued. He commanded a certain number of troops to be levied every year, in each province. This army formed an incampment round about the capital. At the end of the year, he diſmiſſed theſe ſoldiers to their own homes, and commanded new ones to be raiſed in their room. This conduct anſwered two ends. On one hand, Ninias kept his ſubjects in obedience, by the ſight of ſo numerous an army, always ready to march to chaſtiſe rebels at whatever diſtance. On the other hand, by the annual change of theſe troops, the officers and ſoldiers were prevented from contracting over ſtrict connections, or forming ſeditious enterpriſes. He took ſpecial care likewiſe to commit the government of provinces to none but ſuch as were entirely devoted to his perſon[l], and each governor was obliged to repair to Nineveh every year, to give an account of his conduct[m].

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[g] Strab. l. 16. p. 1081.   [h] Idem, ibid. p. 1082.   [i] Syncell. p. 102. D.

[k] Juſtin. l. 1. c. 2.; Diod. l. 2. p. 135.

They accuſe Ninias of ſhutting himſelf up continually in his palace[n]. This was no doubt a peace of wrong policy. But they ſeem to have no ſufficient proof of what they further ſurmiſe, that this prince concealed his perſon only to hide his views[o]. On the contrary, we find in thoſe very writers who give Ninias this infamous character, ſeveral facts which cannot be reconciled with the idea they would give us of this prince. Theſe authors, in effect, agree that he always took care to place good generals at the head of his armies, experienced governors in his provinces, and able judges in his cities; in a word, that he neglected nothing that appeared to him neceſſary to preſerve order and tranquillity in his dominions[p]; and that he maintained peace during his whole reign[q]. What can be aſked more? I am perſuaded Ninias had no other view in ſhutting himſelf up in his palace, and living almoſt inacceſſible, but to inſpire his ſubjects with greater reſpect and veneration for his perſon. In the following books, we ſhall ſee, Dejoces King of the Medes, who has always been conſidered as the greateſt politician of antiquity, purſuing the ſame conduct.

This plan of government formed by Ninias, was exactly followed by his ſucceſſors[r]. We know not the detail of their actions. In the following books, we ſhall have occaſion to ſpeak our thoughts of the ſentiments of the Greek writers concerning theſe ancient monarchs.

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[l] Diod. l. 2. p. 135.
[m] Nicol. Damaſc. ap. Valeſ. excerpt. p. 425.
[n] Diod. ibid.; Juſt. l. 1. c. 2.
[o] Diod. ibid.
[p] Diod. l. 2. p. 135.
[q] Ibid. p. 134.
[r] Diod. Juſtin. *loc. cit.*

ARTICLE IV.

Of the laws and government of the Egyptians.

THE Egyptians, of all the nations of antiquity, are moſt worthy of our attention. We are particularly intereſted in their hiſtory. From them, by an uninterrupted chain, all the moſt polite and beſt conſtituted nations of Europe, have received the firſt principles of their laws, arts, and ſciences. The Egyptians inſtructed and enlightened the Greeks; the Greeks performed the ſame beneficent office to the Romans. Theſe lords of the world were not aſhamed to borrow from the Greeks, the knowledge which they wanted, which they afterwards communicated to the reſt of mankind, and of which we are in poſſeſſion at this day. So many other conſiderations are joined to this, that none ought to be ſurpriſed, that I treat this article concerning Egypt at ſome length. This nation, in whatever light we view it, does the greateſt honour to human nature, of all the ancient nations. The Egyptians preſent us with excellent models of all kinds of laws, arts, ſciences, morals, and politics. But the more curious and intereſting the hiſtory of this people is, it is the more to be regretted, that it is involved in darkneſs and obſcurity. This may be aſcribed in part to the vanity of the Egyptians. Wiſe as they were, they had that weakneſs common to all nations, of priding themſelves on their prodigious antiquity. According to the Egyptian chronicles, their monarchy had continued more than one hundred thouſand years[r]. It is eaſy to ſee the abſurdity of theſe pretenſions. I have pointed out the ſource and epocha of theſe chimerical pretenſions, in my diſſertation concerning that long ſeries of ages the ancients loved to boaſt of[t]. More intereſting objects demand our attention.

Egypt was one of thoſe countries which were ſooneſt civilized. The ancients even believed, that the Egyptians were the very firſt people who had a regular and ſettled form of government [u]. To ſay all in one word, they were eſteemed the inventors of monarchy [x]. The ſacred books confirm the teſtimony of profane authors, about the great antiquity of this kingdom. The kings of Egypt are there called the ſons of ancient kings [y]. Cham the ſon of Noah is conſidered as the leader of that colony, from the plains of Shinar, which ſettled in Egypt.

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[r] Auguſt. de civ. Dei, l. 18. c. 40.

[t] See our diſſertation at the end of the laſt volume.

The events which followed that epocha are not known. The dates and duration of the reigns of the ancient kings of Egypt, are ſubject to a thouſand difficulties, which I ſhall not attempt to reſolve. Diſquiſitions of that kind are quite foreign to my deſign. In effect, it is of little importance to know the number of their dynaſties, and the names of their ſovereigns; it is far more eſſential to underſtand the laws, arts, ſciences, and cuſtoms of a nation, which all antiquity has regarded as a model of wiſdom and virtue. Theſe are the objects I propoſe to examine, with all the care and exactneſs I am capable of.

It is certain that the monarchical form of government was eſtabliſhed amongſt the Egyptians [z] from the earlieſt antiquity. This people, too, had the advantage of being governed for many ages by ſovereigns born in the boſom of their country [a]. It would appear alſo, that, in theſe firſt ages, this kingdom enjoyed long peace and great tranquillity [b]. We may obſerve further, great ſteadineſs and conſtancy in this nation, as to their laws, and form of government. Let us add, that Mneves, who is reckoned the firſt lawgiver of the Egyptians, had, as they pretend, put his laws into writing [c].

After theſe reflections, we need not be ſurpriſed to obſerve the real ſtate of Egypt, about 430 years after the flood, when Abraham was forced by a famine to go down into that country [c]. Even then Egypt was a very flouriſhing and well-regulated kingdom, able to ſupport its own inhabitants, and even to afford relief to ſtrangers. Moſes repreſents the ſovereign who reigned at that time, as a powerful and magnificent monarch, ſurrounded with a croud of courtiers, who ſtudied to pleaſe his taſte, and gratify his paſſions [d]. When Pharaoh diſmiſſed Abraham, he loaded him with preſents [e].

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[u] Ariſt. prob. l. 7. c. 10. p. 437.; Metereolog. l. 2. c. 14. p. 548. D.; Diod. l. 1. p. 13.

[x] Plin. l. 7. ſect. 57. p. 415.

[y] *Filii regum antiquorum*, Iſ. c. 19. v. 11.

[z] See Diod l. 1. p. 13. 17.

[a] Ibid. p. 53. 80.; Herod. l. 2. n. 100.

[b] Strabo, l. 17. p. 1174. B.

[c] Diod. l. 1. p. 105. Mneves without doubt has been eſteemed the firſt legiſlator of Egypt, becauſe he was the firſt who put his laws in writing. For before him Vulcan, Helius, and Oſiris had given laws to Egypt. See Diod. l. 1. p. 17. 18. Chron. Alex. p. 45. But the laws of theſe princes had not been written.

That we may be the more ſenſible of the ſuperiority of Egypt over other nations in theſe firſt ages, let us compare the behaviour of Pharaoh towards Abraham, with that of Abimelech King of Gerar towards Iſaac in ſimilar circumſtances. This compariſon will convince us of the great difference between a king of Egypt and a king of the Philiſtines at that time.

Abimelech is repreſented in ſcripture as hardly able to make head againſt Iſaac. The power of this patriarch alarmed him; he required an oath from him that he would retire out of his territories. Iſaac had dug ſome wells. Abimelech underhand raiſes diſputes about them; at laſt that prince determines to go in perſon, and aſk an alliance with the patriarch: he even makes him promiſe with an oath, that he will do him no hurt. The ſpeech which Iſaac makes to Abimelech on that occaſion, is mingled with taunts and reproaches [f]. On the whole, we ſee, that he treated with the King of Gerar, at leaſt as his equal.

If we go on, and obſerve the idea the ſcriptures give us of the ſtate of Egypt in the days of Jacob, we ſhall diſcover ſtill

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written. The Egyptians, as well as all other nations, were long ignorant of the art of painting ſpeech, and rendering it durable. As ſoon as they diſcovered this art, they no doubt employed it in writing and digeſting their laws. Menes pretended to receive his laws from Mercury (Diod. p. 19.), and the Egyptians regarded Mercury as the inventor of hieroglyphic writing. Plato, p. 374. E. p. 1240, A.; Diod. l. 1. p. 19.; Plut. t. 2. p. 738. E.

[c] Gen. c. 12.

[d] *Cum itaque ingreſſus eſſet Abraham Egyptum, viderunt Ægyptii mulierem (Saram) quod eſſet pulchra nimis, & nuntiaverunt principes Pharaoni,* &c. Gen. c. 12. v. 14. 15.

[e] Gen. c. 12. v. 16. 20. c. 13. v. 2.

[f] See Gen. c. 26. v. 27.

more clearly, many of the marks of a powerful monarchy, whoſe conſtitution and government was well regulated and thoroughly underſtood. We ſee a kingdom divided into ſeveral provinces or departments [g], a council compoſed of perſons of the greateſt wiſdom and experience, well-choſen miniſters [h], different priſons for the confinement of criminals [i], a prieſthood enjoying ſettled revenues [k], public granaries [l], a trade in ſlaves [m], and in a word, a commerce which muſt have been conſiderable [n]. All theſe things ſufficiently indicate a people who muſt have been very early civilized *.

Again, the kings of Egypt, in the times of Jacob, were ſurrounded with all that external pomp and ſplendor which adorn the majeſty of ſovereigns in the moſt polite nations. We ſee a captain of the guards [o], a grand cup-bearer, a chief baker [p]. Pharaoh, in order to diſplay the authority with which he had inveſted Joſeph, gave him a ring from his own finger, made him be arrayed in veſtures of fine linen, and adorned with a golden chain [q]; he commanded him to ride in one of the royal chariots, and a herald to proclaim before him, "Bow "the knee to Joſeph, and let every one acknowledge him as "the appointed ruler of all the land of Egypt [r]." All this pomp diſplays the ſplendor of a brilliant and magnificent court.

We are not however to imagine, that all thoſe laws and maxims which have rendered the Egyptians ſo famous in the art of government, were the work of the firſt ages of their monarchy. Hiſtorians atteſt the contrary. They have preſerved the names of ſeveral legiſlators, who from time to time augmented and improved the laws of Egypt [s]. We muſt only aſſert, that this people were acquainted very early with ſome of the fundamental maxims of true policy. It is of importance to know what theſe maxims were. I ſhall endeavour to repreſent them, as hiſtory has tranſmitted them to us, obſerving as much as poſſible the order and epocha of each of the conſtitutions of which the hiſtorians ſpeak. I ſhall not mention, at preſent, any but ſuch as we know, and have reaſon to believe, took place in theſe ages now under our conſideration. In the following books we ſhall ſpeak of the regulations eſtabliſhed in the reſpective ages which are the ſubject of theſe books. I reſerve to the third part of this work, the reflections which I deſign to make on ſeveral laws and maxims which ſeem to merit a more particular attention.

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[g] Gen. c. 41. v. 46. [h] Id. ibid. v. 37.

[i] C. 39. v. 20. c. 40. v. 3. [k] C. 47. v. 22. [l] Ibid.

[m] C. 37. v. 28. 36. [n] Ibid. v. 25. 28.

* The Mexicans and Peruvians furniſh us with an example how quickly a people may be civilized. When the Spaniards arrived in Peru and Mexico, theſe empires were very regular in their policy. They had good laws, were acquainted with ſeveral arts and ſciences. The courts of their emperors were very brilliant and magnificent. Yet theſe monarchies had not ſubſiſted above 350 years at moſt. We reckon about 650 from the flood to the time Jacob was in Egypt.

[o] Gen. c. 39. v. 1.

It is in this ſenſe I imagine we ſhould underſtand the office of *princeps exercitus*, which Moſes gives Potiphar. We know the kings of Egypt had a guard of 2000 choſen men, who were relieved every year. Herod. l. 2. n. 168.

[p] Gen. c. 40. v. 1. & 20. [q] Gen. c. 41. v. 42. [r] Ibid. v. 43.

We have ſeen, that from the beginning the throne was hereditary amongſt the Egyptians [t]. Their kings applied themſelves particularly to ſettle and regulate the ceremonies of religion. All antiquity looked upon the Egyptians as the firſt who paid a ſolemn and public worſhip to the Deity [u]. Their annals gave the honour of that inſtitution to Oſiris [x]. It is evident from the ſacred books, that the inſtitution of public worſhip muſt have been very ancient in Egypt. In the days of Joſeph the prieſthood enjoyed great immunities. Moſes ſays, they had received their lands from the bounty of the king [y], and paid no tribute for them [z]. Diodorus informs us, that Iſis gave the property of the third part of Egypt to the prieſts for their own maintenance, and furniſhing the neceſſary ſacrifices [a]. They held them in the higheſt honour; they were the firſt order in the ſtate, always near the perſon of the ſovereign; they aſſiſted him with their advice and inſtruction, and ſometimes with their perſons [b]. The public records and archives were committed to the cuſtody of the prieſts [c]. In a word, they filled the higheſt offices of the ſtate, adminiſtered juſtice [d], directed in the levying taxes [e], had the inſpection of monies, weights, and meaſures [f].

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[s] See Diod. l. 1. p. 105. & 106.; Herod. l. 2. paſſim.

[t] See Diod. l. 1. p. 17.

[u] Herod. l. 2. n. 4.; Porphyr. ap. Euſeb. praep. evang. l. 9. c. 10.

[x] Diod. l. 1. p. 19.

[y] Gen. c. 47. v. 26. See Herod. l. 2. n. 37.

[z] Gen. ibid. v. 22.

[a] Diod. l. 1. p. 25.

[b] Ibid. l. 1. p. 84.; Strab. l, 17. p 1136.

[c] Diod. *loco citato.*

The Egyptians were amongſt the firſt who knew and obſerved this important maxim, That the union of the ſexes ought to be under certain regulations. They aſcribed the laws concerning marriage to their firſt ſovereign [g]. It appears to have been the cuſtom in Egypt to give portions with their daughters at marriage. We find Pharaoh (a good deal later indeed than the times we ſpeak of) giving the city of Gazer as a portion with his daughter to Solomon [h]. The Egyptians were permitted to marry only one wife. Herodotus ſays this expreſsly [i]. Diodorus [k] muſt then have been miſinformed, when he ſays, that the Egyptians, except the prieſts, might marry as many wives as they pleaſed. Theſe people underſtood the fundamental maxims of policy too well, to be ignorant that polygamy was pernicious to population. The compariſon of thoſe countries where polygamy is allowed, with thoſe where it is forbidden, proves this ſufficiently. We diſcern the ſame wiſe policy in the principles of the Egyptian government, as in that which was brought from thence by Cecrops, and eſtabliſhed in Greece. We ſee that the inſtitution of the firſt marriage of one man with one woman, was one of the laws of that founder of Athens [l].

In conſequence of this principle, adultery was puniſhed with great ſeverity in Egypt. They gave the man a thouſand ſtripes with rods, and cut off the woman's noſe [m]; the law which puniſhed this crime, ſo pernicious to ſociety, was very ancient. It had been eſtabliſhed by Helius the ſon of Vulcan [n]. The ſacred books furniſh us with an example of the high reſpect that was paid to the conjugal union in Egypt in the days of Abraham [o].

The Egyptians were very reſpectful to the fair ſex; they paid greater honour and obedience to their queens than to their kings: even amongſt private perſons, the men promiſed in their marriage-contracts that they would be obedient in all things to their wives [p]. This cuſtom aroſe from the high reſpect and veneration Iſis had acquired by her excellent government, after the death of her brother Oſiris [q]. The great happineſs of the marriage of this princeſs with her brother, gave occaſion to that law which permitted the marriage of brothers and ſiſters [r].

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[d] Ælian. var. hiſt. l. 14. c. 34.
[e] Clem. Alex. ſtrom. l. 6. p. 758.
[f] Calmet in Exod. t. 2. p. 468.
[g] *Supra*, p. 21.
[h] 1 Kings c. 9. v. 16.
[i] Herod. l. 2. n. 92.
[k] Diod. l. 1. p. 91.
[l] Part 2. b. 1. c. 3. art. 1.
[m] Diod. l. 1. p. 89. 90.
[n] Palaephat. apud chron. Alex. p. 45.; Cedren. p. 19. D.
[o] Gen. c. 12. v. 19.

The ſtrength and proſperity of a ſtate conſiſts in the number of its inhabitants. The Egyptians were very ſenſible of this. The barbarous practice of expoſing infants to death, ſo common in other ancient nations, was not allowed in Egypt. On the contrary, the Egyptians were commanded to preſerve and bring up all their children [ſ]. They were even obliged to acknowledge for legitimate thoſe they had by their ſlaves [t]. This people poſſeſſed the art of bringing up children at a very ſmall expenſe [u]. The excellence of their climate contributed much to this; for in warm countries it coſts but very little to bring up and maintain children. They educated them in a very hardy manner, and at no great expenſe [x]. For theſe reaſons the Egyptians were at once very numerous and capable of undergoing the greateſt fatigues [y].

Nothing contributes more to the peace and ſupport of a ſtate, than the veneration and obedience of children to their parents. The Egyptian legiſlators employed all the methods they could think of to inſpire and cheriſh theſe ſentiments in children. It was with a view of preſerving this veneration, even after the death of their parents, that the art of embalming was invented. This cuſtom was extremely ancient in Egypt; it was practiſed in the days of Jacob [z].

With reſpect to the police and conſtitution of the ſtate, hiſtorians inform us, that Egypt was originally divided into a certain number of nomes, or provinces [a]. This diviſion muſt have been very ancient; for we find it had taken place in

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[p] Diod. l. 1. p. 31.
[q] Ibid.
[r] Ibid.; Philo Jud. de ſpec. leg. p. 780. A.; Pauſ. l. 1. c. 7.
[ſ] Diod. l. 1. p. 91.; Strab. l. 17. p. 1179. 1180.
[t] Diod. l. 1. p. 91.
[u] Ibid.
[x] Ibid.
[y] Ibid.
[z] Gen. c. 50. v. 2. 3.
[a] Diod. l. 1. p. 84.; Strabo, l. 17. p. 1135.

Joſeph's time [b]. The ſame hiſtorians add, that all the inhabitants of Egypt were diſtributed into three claſſes, prieſts, ſoldiers, huſbandmen and mechanics [c]. Strabo informs us further, that, in conſequence of this primordial diviſion, the lands of each province were divided into three parts, and one allotted to each claſs [d]. If we may believe Herodotus and Diodorus, the Egyptians were ſubdivided into ſeveral other claſſes [e]. This police might have taken place in the very earlieſt times. But another arrangement which Diodorus mentions, muſt have been poſterior to the ages we are now upon: That all the lands were divided into three ſhares, one of which belonged to the king, one to the prieſts, and the other to the ſoldiers [f]; and that the huſbandmen took theſe lands in farm for a very moderate portion of their produce [g].

We learn from ſcripture, that, in the days of Joſeph, every inhabitant was proprietor of a certain portion of ground, which he was obliged to ſell to the king in the ſeven years famine which afflicted Egypt [h]. Joſeph at that time acquired for Pharaoh the property of all the ſoil of Egypt [i]. The prieſts alone were not under a neceſſity of diſpoſing of their domains, becauſe they were furniſhed with a ſufficient quantity of corn out of the royal granaries [k]. Joſeph having thus obtained for Pharaoh all the lands, did not think it the intereſt of his ſovereign, to reduce his ſubjects to beggary. For this reaſon, he returned the people their lands, on this condition, ſays Moſes, that they ſhould pay the king a fifth part of their produce annually. This inſtitution ſtill ſubſiſted in the days of Moſes [l]. Herodotus and Strabo confirm theſe facts. Herodotus ſays, that Seſoſtris (who, according to our chronology, mounted the throne a little after the death of Joſeph) had divided all the land of Egypt amongſt the inhabitants, and impoſed a tribute upon each, according to the quantity he poſſeſſed [m]. By the manner in which Strabo ſpeaks of the revenues of the kings of Egypt, it would ſeem that he had alſo ſome knowledge of this fact. He ſays that the revenue of theſe monarchs conſiſted in the tributes which they levied from the lands, and induſtry of their ſubjects [n].

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[b] Gen. c. 41. v. 34. 46. [c] Diod. l. 1. p. 84. 85. [d] L. 17. p. 1136.

[e] Herod. l. 2. n. 163. ſays that the Egyptians were divided into ſeven orders, *viz. prieſts, ſoldiers, ſhepherds, ſwineherds, merchants, interpreters,* and *ſailors,* each denominated by the profeſſion he followed. Ancient authors are divided on this ſubject. See Plat. in Tim. p. 1044.; Iſocrat. Buſirid. p. 328.; Diod. l. 1. p. 85.; Strabo, l. 17. p. 1135.

[f] Diod. l. 1. p. 84. [g] Ibid. p. 85. [h] Gen. c. 47. v. 18.

[i] Ibid. v. 20. [k] Ibid. v. 22. [l] Gen. c. 47. v. 24. 26.

The Egyptians were exceedingly exact and vigilant about the adminiſtration of juſtice, believing that the ſupport or diſſolution of ſociety depended entirely upon that [o]. Their higheſt tribunal was compoſed of thirty judges. They placed at the head of this tribunal, the perſon who at once poſſeſſed the greateſt ſhare of wiſdom, probity, and public eſteem. The king furniſhed theſe judges with every thing neceſſary for their ſupport [p], ſo that the people paid nothing for obtaining juſtice. No advocates were ſeen in this tribunal. The parties were not even allowed to plead their own cauſes. All trials were carried on in writing, and the parties themſelves drew up their own proceſſes. Thoſe who had ſettled this manner of proceeding, were very ſenſible, that the eloquence of advocates very often darkened the truth, and miſguided the judges. They were unwilling to expoſe the miniſters of juſtice to the bewitching charms of pathetic, affecting declamation. The Egyptians avoided this, by making each party draw up the ſtate of his own caſe in writing [q], and they allowed them a competent time for that purpoſe. But to prevent the protracting ſuits too long, they were only allowed to make one reply on each ſide [r]. When all the evidence neceſſary for their information was given in to the judges, they began their conſultations. When the affair was thoroughly canvaſſed, the preſident gave the ſignal for proceeding to a ſentence, by taking in his hand a little image adorned with precious ſtones, which hung at a chain of gold about his neck. This image had no eyes, and was the ſymbol the Egyptians uſed to repreſent truth [s]. Judgment being given, the preſident touched the party who had gained his cauſe with this image. This was the form of pronouncing ſentences [t]. According to an ancient law, the kings of Egypt made the judges take an oath at their inſtallation, that if the king ſhould command them to give an unjuſt ſentence, they would not obey him [u].

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[m] L. 2. n. 109.

[n] L. 17. p. 1135. C.

[o] Diod. l. 1. p. 86. 87.

[p] Ibid.

[q] Ibid. All this, I imagine, muſt be underſtood with ſome limitations, otherwiſe we muſt ſuppoſe that all the inhabitants of Egypt had not only learned to write, but that they had ſufficient talents and knowledge of the laws, to draw up their own defences, which is not to be ſuppoſed. This law then muſt have been liable to ſome exceptions and modifications.

We muſt ſay the ſame thing of thoſe other countries, where they tell us there are no advocates, and that all trials are carried on in writing, as in Siam, China, Bantam, &c. Jour. des Scav. 1688, Mai, p. 239.; Anc. relat. des Indes & de la Chine, p. 194. 203.; Rec. des voyag. Holland. t. 1. p. 351. 352.; Mém. de Trev. Sept. 1717, p. 1495.

[r] Diod. l. 1. p. 87.

The uſe of ſeals or ſignets, in atteſting and authenticating deeds, is very ancient, and were uſed in Egypt. Diodorus informs us, that any perſon who counterfeited the king's ſeal, had both his hands cut off [x]. It appears that the uſe of ſeals was eſtabliſhed in Egypt in Joſeph's time. The ancient ſeals were commonly ingraved on the bezil of the rings which they wore. It is ſaid in ſcripture, that when Pharaoh intruſted Joſeph with an unbounded authority over all Egypt, he took his ring from his finger, and gave it to this patriarch [y]. From this fact we have reaſon to think, this ring was the royal ſeal, and that Pharaoh gave it to Joſeph, as a mark of the abſolute power over his kingdom with which he had intruſted him.

After having deſcribed the manner in which juſtice was adminiſtered amongſt the Egyptians, it will not be improper to mention a few of the laws which rendered that people ſo famous in antiquity, ſome of which ſubſiſt to this day among us [z]. At preſent, I ſhall only ſpeak of their penal laws, for hiſtorians hardly mention any other. They ſay but little of the civil laws of Egypt: and thoſe which they have recorded, were made by ſovereigns who reigned in much later times than thoſe we are now treating of. I have already acquainted the reader, that I would range them under their different epochas. I reſerve too, for the article of war, all laws relating to the military ſtate; they were made by Seſoſtris, and I ſhall ſpeak of them in the ſecond part of this work.

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[s] Diod. l. 1. p. 58. 86. 87.
[t] Ibid. p. 86. 87.
[u] Plut. t. 2. p. 174. C.
[x] L. 1. p. 89.
[y] Gen. c. 41. v. 41. 42.
[z] *Solon ſententiis adjutus Ægypti ſacerdotum, latiſque juſto moderamine legibus, Romano quoque juri maximum addidit firmamentum.* Amm. Marcell. l. 22. p. 346. See alſo part 3. b. 1. c. 2.

The ſacred books atteſt the antiquity and ſeverity of the penal laws of Egypt. There were in Joſeph's time ſeveral priſons for confining criminals [a]. Puniſhments were then extremely ſevere. Pharaoh's chief baker was condemned to death [b] Moſes, it is true, does not ſpecify the crime that officer was guilty of; but what he ſays ſufficiently proves, that in that age capital puniſhments were eſtabliſhed in Egypt. Profane hiſtorians have tranſmitted to us a very circumſtantial detail of the penal laws of Egypt, which we ſhall lay before our readers.

Whoever had it in his power to ſave a man's life, who was going to be killed, and did not, was puniſhed with death. If he was not able to defend the perſon aſſaulted, he was bound to inform againſt the author of the violence: if he neglected to do this, he was to receive a certain number of laſhes, and to be kept three days without meat [c]. Thus all the citizens were protectors of one another, and every member of the ſtate intereſted in preventing or puniſhing all acts of violence We may mark, even in ſome of their inſtitutions, the motives of which are not very obvious, an extreme attention of the government to the preſervation of the people.

Herodotus tells us, that when a perſon was found dead, whether a ſtranger or an Egyptian, in whatever manner the accident had happened, whether he had been aſſaſſinated, ſlain by a crocodile, drowned in the Nile, &c. the city neareſt the place where the body had been found, was obliged to embalm it in the moſt magnificent manner, and give it a moſt ſumptuous funeral [d]. This ſeems to have been a very wiſe and politic regulation, to oblige the ſeveral cities to take all poſſible precautions to prevent accidents, and provide for the ſecurity of their territories. It was their intereſt to do this, to avoid the great expenſe attending the embalming and burial of the bodies found dead, according to that law.

Wilful murder was puniſhed with death, whether the perſon ſlain had been a freeman or a ſlave [e]. By this law, the lives of perſons of all ranks were equally ſecured. We find a remarkable example of this in the adventure of Joſeph with the wife of Potiphar. Joſeph was at that time the ſlave of this too credulous huſband, who is repreſented by Moſes as one of the greateſt lords in Pharaoh's court. Though he was fully perſuaded that Joſeph had offered him the moſt outrageous and provoking affront, yet, on this delicate occaſion, he did not break out into any act of violence againſt his ſlave; he ſent him to priſon, that he might be tried, convicted, and puniſhed in a legal manner [f].

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[a] Gen. c. 39. v. 20. [b] Chap. 40. v. 22. [c] Diod. l. 1. p. 88.
[d] L. 2. n. 90.

We cannot beſtow too great praiſes on this manner of thinking and acting. The kind treatment maſters were obliged to give their ſlaves, muſt neceſſarily have produced the happieſt effects, by inſpiring all the members of the ſociety with humanity, mildneſs, and mutual benevolence.

The Egyptians had contrived an extraordinary puniſhment for parricides. They forced little pieces of reeds, about a finger's length, into all parts of their bodies, and then ſurrounded them with faggots of thorns, to which they ſet fire [g].

As for thoſe unnatural parents who had killed any of their children, they were not put to death. The Egyptians exempted them from the common fate of murderers, but had invented a puniſhment for them more ſevere than death. Theſe wretched parents were obliged to hold in their arms, the dead bodies of their murdered children, for three days and three nights ſucceſſively, in public, amidſt the guards which ſurrounded them [h].

Perjury was unpardonable, and puniſhed with death. The Egyptians eſteemed this crime equally injurious to the gods and men: to the gods, by bringing their majeſty into contempt; to men, by deſtroying the ſtrongeſt bonds of ſociety, ſincerity and good faith [i].

A calumniator was condemned to the ſame puniſhment the perſon would have ſuffered if the accuſation had proved true [k].

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[e] Diod. l. 1. p. 88. [f] Gen. c. 39. v. 16. &c.
[g] Diod. l. 1. p. 88. [h] Ibid. [i] Ibid. p. 87. [k] Ibid. p. 88.

Thoſe who diſcovered any ſecrets of the ſtate to its enemies, had their tongues cut out [l].

Thoſe who counterfeited the current coin, the king's ſeal, or the ſeals of private perſons, together with ſuch as uſed falſe weights or falſe meaſures, were condemned to have both their hands cut off [m].

Public notaries who had forged falſe deeds, or who added any thing to, or ſuppreſſed any part of the writings they had received to copy, were condemned to the ſame puniſhment. Thus every one was puniſhed in that part which had been the inſtrument of his crime [n].

The laws againſt all attempts on the honour and chaſtity of women, were very ſevere. Whoever violated a free woman, was made an eunuch [o]. I have already mentioned the puniſhment of adulterers [p].

The conduct of the Egyptians towards pregnant women who had been condemned to death, does honour to their equity and wiſdom. They delayed the execution till after they were delivered [q]. This law, ſo agreeable to humanity and right reaſon, has been adopted by the Greeks, and by all civilized nations in general [r].

That trial which the character of every Egyptian underwent immediately after his death, may, I think, be ranked amongſt their penal laws. It is generally known, how much the ancients were concerned about the diſpoſal of their bodies after death. To be deprived of burial, was conſidered as the greateſt of calamities. In Egypt no one could hope for the honours and advantages of a funeral, but by virtue of a public and ſolemn decree. The tribunal which pronounced theſe awful decrees, was compoſed of forty judges [ſ]. As ſoon as a man died, his friends informed that court of the time they deſigned to bury him. The judges aſſembled on the day appointed. The law permitted any perſon to accuſe the deceaſed. If he was convicted of having lived ill, he was refuſed the honours of burial. On the contrary, if no reproach was fixed upon

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[l] Diod. l. 1. p. 89. [m] Ibid. [n] Ibid. [o] Ibid.
[p] *Supra*, p. 52. [q] Diod. l. 1. p. 88. [r] Plut. t. 2. p. 552. D.
[ſ] Diod. l. 1. p. 103.

his memory, they pronounced his panegyric with a loud voice, and buried him honourably [t]. The ancients have remarked, that, in theſe funeral orations, they never once mentioned the rank or family of the deceaſed. All the Egyptians believed themſelves equally noble; nobility of birth or blood was a thing unknown amongſt that people [u].

The moſt ſurpriſing and admirable circumſtance of this public inqueſt is, that even royalty was not exempted from it: kings, as well as others, were ſubjected to it. As long as they lived, they had ſo profound a veneration for their ſacred perſons, that they never ventured to condemn any of their actions; but this did not ſcreen them from that trial all were obliged to undergo after death. On the day appointed for the royal funeral, a public audience was held, according to law, where all complaints and accuſations were received againſt the deceaſed monarch. The manner of proceeding was. The prieſts began the ſolemnity with pronouncing his panegyric, and celebrating his good actions. If the monarch had really reigned well, the innumerable multitudes who attended, anſwered the prieſts with loud acclamations; but a general murmur enſued if he had reigned ill; and ſome kings have been deprived of burial, by the deciſion of the people [x].

This cuſtom of judging their kings after their death, may be traced up to the earlieſt ages of the Egyptian monarchy [y]. It appeared to the Iſraelites ſo wiſe a practice, that they in part adopted it. We ſee in ſcripture, that the kings who reigned ill, were not buried in the ſepulchre of their fathers [z]. Joſephus informs us, that this cuſtom was alſo obſerved in the time of the Aſmonean princes [a].

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[t] Diod. l. 1. p. 103.

[u] Ibid. p. 83. 84.

[x] Diod. l. 1. p. 81. & ſeq.

[y] Ibid. p. 84. lin. 65.

[z] 2 Chron. c. 21. v. 19. 20. c. 24. v. 25. c. 28. v. 27. 2 Kings c. 21. v. 26.

[a] Antiq. l. 13. c. 23.

ARTICLE V.

Of the Laws and Government of Greece.

THE glory of a nation is not always to be meaſured by the number of its people, or extent of its provinces. The whole territories of ancient Greece were not ſo large as two of the beſt provinces of France; and yet the hiſtory of no nation of antiquity has excited ſuch eager and univerſal curioſity. The Greeks acted the ſame glorious part in Europe the Egyptians did in Africa. This nation preſents to an inquiſitive mind, the moſt precious monuments of antiquity, the moſt ſurpriſing events in hiſtory. By whom are theſe things preſented? By writers of the moſt uncommon merit, by hiſtorians who had the happy talent of making events inconſiderable in themſelves, appear important and intereſting[b]. The ſubject is noble and extenſive; but ſo much has already been wrote upon it, that it will not be neceſſary to treat it at full length. We ſhall chuſe only the moſt ſtriking and moſt authentic events.

We cannot depend upon the firſt part of the Greek hiſtory. Though the antiquities of this country have been tranſmitted to us by its natives, who ought to have been beſt acquainted with its hiſtory; yet it muſt be owned, they give us but a very confuſed idea of the primitive ſtate of that part of Europe. The facts are ſo much diſguiſed by fables, that it is very difficult to diſcern the truth. Yet as theſe fables had a foundation in hiſtory, we muſt make uſe of them for theſe remote ages.

The Greeks had the ſame vanity with other nations. If we believe their popular traditions, their antiquity was immemorial; they not only boaſted of being the firſt inhabitants of that country, but that they had from all ages, if we may ſo ſpeak, inhabited it. The Athenians boaſted that they were as ancient as the ſun[c]. The Arcadians pretended they were older than the moon[d]: the Lacedæmonians called themſelves the ſons of the earth[e], &c. Such in general was the madneſs of the ancients on this ſubject of the origin of their reſpective nations! They loved to loſe themſelves in an abyſs of ages, which ſeemed to approach eternity. We can ſay nothing at all certain concerning the origin of the Greeks, but what we learn from ſcripture. Moſes is the only faithful guide in the hiſtory of the firſt peopling of countries. The tenth and eleventh chapters of Geneſis diffuſe more light on that ſubject, than all the writings of profane hiſtorians, which, on this head, are nothing but a heap of confuſion, conjectures, and contradictions.

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[b] We need no other examples of this than thoſe trifling wars in Peloponneſus and other places, which no body would have regarded, had it not been for the ſuperior art of their hiſtorians.

It is evident to a demonſtration, that the weſt was peopled from the eaſt. Javan the ſon of Japhet, and grandſon of Noah, is undoubtedly the ſtem of all thoſe people which were called Greeks[f]. The ſcriptures inform us, that the poſterity of this patriarch ſettled near the weſtern ſhores of the Leſſer Aſia[g]. It is probable, they would not be long in paſſing from thence to the continent of Europe[h].

We find ſeveral nations anciently ſettled in Greece, of whoſe origin and hiſtory we have not the leaſt knowledge. Such were the Pelaſgi, the Aones, the Hyantes, the Lelegi, the Carians, the firſt inhabitants of Arcadia, Attica, &c. Of all theſe ancient colonies, the Pelaſgi were the moſt conſiderable [i]. In the remoteſt antiquity we meet with the Pelaſgi, not only in ſeveral parts of Greece, but in the iſland of Crete, in Italy, and even on the coaſts of the Leſſer Aſia [k].

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[c] Menander Rhetor, apud rhetor. Graec. veter. edit. Ald. 1508. in fol. p. 604.

[d] Ovid. faſt. l. 2. v. 290.; Lucian. de aſtr. n. 26.; Menand. Rhet. *loco cit.*

[e] Pauſan. l. 3. c. 1. Let us obſerve, that theſe fine opinions were only current among the vulgar. The fine geniuſes amongſt the Greeks always treated them with contempt. None but the declaimers or ſophiſts mentioned them for the ſake of popularity. See *infra* § 1. note *. p. 67.

[f] The name of Ionians was common to all the people of Greece. It is remarkable that the letters of the Hebrew word יון *Javan* without the points form the word *Ion*. See Bochart Phaleg. l. 3. c. 3.

Let us obſerve further, that the Indians, who often mention Alexander in their poems, call him *Javan, Raja,* king of the Javans, Lettr. édif. t. 26. p. 230.

[g] Gen. c. 10. v. 4. 5.; Joſ. antiq. l. 1. c. 6. init.

[h] See le Clerc in not. ad Heſiod. p. 28. 29.

The ancients have left us nothing ſatisfactory concerning the origin of the Pelaſgi. Some tell us, that this people were originally from Arcadia, and that they derived their name from one Pelaſgus, who had taken poſſeſſion of ſo great a part of Peloponneſus, that the whole country was called from him *Pelaſgia*, and the people *Pelaſgi* [l]. But the variety of the ſtories given us by writers concerning this prince, is a proof of their ignorance of his origin and country [m]. Others, without pretending to diſcover the origin of the Pelaſgi, ſay, that they derive their name from their unſettled wandering manner of life; which ſeems to me the moſt probable opinion [n].

Next to the Pelaſgi, the Carians ſeem to have made the greateſt figure in theſe firſt ages in Greece. We ſee them ſpread over the iſlands of the Archipelago, and the coaſts of the Leſſer Aſia in the earlieſt times. It remains to examine whether the Pelaſgi and Carians were originally one colony, or whether the Pelaſgi were deſcended from Javan, and the Carians from the Phœnicians, that is, Canaanites, who very early ſailed thoſe ſeas which ſeparate Europe from Aſia. The little hopes of ſucceeding in this inquiry, diſſuades me from engaging in it [o].

All that we know is, that the inhabitants of Greece lived originally without intercourſe or connection with each other. There were no laws, no ſuperior power to unite them; every thing was determined by mere ſtrength and violence [p]. It would be difficult to believe the extreme barbarity of the firſt Grecians, if we had not the teſtimony of their own writers [q]. Who could imagine, that that ingenious people, to whom Europe is indebted for all its knowledge, were deſcended from ſavages, who wandered in the woods and fields, without laws or leaders, having no other retreat but dens and caverns [r], without the uſe of fire [ſ], or of food proper for men [t]; nay, ſo ferocious as ſometimes to eat each other [u]. A journey ſo long and difficult as that betwixt Aſia and Europe muſt originally have been, together with the tumult and confuſion attending new ſettlements, made the greateſt part of the deſcendents of Javan loſe all the remains of knowledge which had been preſerved after the deluge *.

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[i] Strabo, l. 5. p. 337. C.

[k] Herod. l. 2. n. 50. & ſeq.; Dion. Halicarn. l. 1. p. 14.; Strabo, l. 5. p. 337. & ſeq.

[l] Heſiod. apud Strab. l. 5. p. 338.; Appollod. l. 2. p. 59.; Stephan. Byzant. *voce* Πελασγια, p. 539.; Pauſan. l. 8. c. 4.

[m] See Bannier, explicat. des fables, t. 6. p. 30.

[n] Dion. Halicarn. l. 1. p. 21.; Strabo, l. 5. p. 339.

[o] See les mém. de l'acad. des inſcript. t. 9. mem. p. 113. t. 21. hiſt. p. 14.

[p] Thucyd. l. 1. p. 2. 3.; Strabo, l. 3. p. 238.

[q] Æſchyl. in Prom. vincto, v. 442.; Ocell. Lucan. c. 3. p. 530. in opuſcul. mythol. See alſo le Clerc, in not. ad Heſiod. p. 37.

A country ſo fair and pleaſant as Greece is, muſt very ſoon have invited ſeveral of theſe numerous adventurers to take poſſeſſion of it. Accordingly, this part of Europe, in theſe firſt ages, was the ſcene of many changes and revolutions. We are ignorant, no doubt, of the greateſt part of theſe very diſtant events. We know only, that, about the time of Abraham, near 2000 years before the Chriſtian æra, a colony came from the eaſt, and took poſſeſſion of Greece. Europe at that time was but thinly peopled. A ſmall handful of men would be ſufficient to ſubject large countries †. The leaders of this new colony were thoſe princes, ſo famous in ancient hiſtory, under the name of Titans, Saturn, Jupiter, &c. Theſe ſtrangers, having ſeized upon Greece, fixed there the ſeat of a very extenſive empire.

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[r] Ovid. metam. l. 1. v. 121.; Plin. l. 7. ſect. 57. p. 413.; Pauſ. l. 8. c. 1. p. 599.

[ſ] See the following book, *init.*

[t] Ibid.

[u] Hygin. fabl. 274. p. 329.; Schol. Pindar. ad Pyth. 4. v. 107. p. 219.; Acad. des inſcript. t. 5. m. p. 118. t. 9. m. p. 203.

* A very ſimple compariſon may make us conceive how the firſt colonies which came from Aſia to Europe might loſe the greateſt part of their knowledge. Let us ſuppoſe a hundred perſons, men and women, who had left a civilized country, caſt upon a deſert iſland, and reſolved to ſettle in it. They would preſently find themſelves in want of every thing, and obliged to ſupply theſe wants by very coarſe expedients, and for want of practice would ſoon forget the arts uſed in their native country. A ſpirit of diſcord and independence would creep in amongſt them; they would ſoon disband, and fall at once into the greateſt miſery and the groſſeſt ignorance. See gen. hiſt. desvoy. t. 11. p. 206. 207.

† The conqueſt of America by the Spaniards renders this aſſertion probable. The Titans, as we ſhall ſee hereafter, came from a civilized country in compariſon of that they invaded. This was at leaſt 352 years after the deluge, according to the Hebrew chronology.

It is difficult to diſcover, from what part of the eaſt theſe conquerors came, who were ſo famous in the ancient times of Greece. Did they come from Scythia, Phrygia, Phœnicia, or Africa? Theſe queſtions are by no means determined. I am of opinion, they came from Egypt; and here are my reaſons for that opinion.

Herodotus aſſures us, that the worſhip of the greateſt part of the firſt gods that were adored in Greece, came from Egypt [x]. He excepts only Neptune, and ſays farther, that this worſhip was derived from Libya [y]. Saturn, Jupiter, Ceres, &c. were the firſt gods of Greece. It is very probable, that the Titans introduced theſe gods into Greece, and conſequently, that theſe princes came from Egypt; for the worſhip of Saturn, Jupiter, and Ceres, &c. was eſtabliſhed in Egypt, time immemorial [z]. The leaders of colonies do not change their religion with their country; but when they have made good their ſettlement, they endeavour to eſtabliſh their religion. This happened in Greece. All the different leaders of colonies which ſettled there from time to time, introduced the religion of the countries from whence they came. Some of theſe leaders themſelves had divine honours paid them. I imagine the Titans were the firſt who enjoyed this diſtinction. The Greeks conceived ſo high a veneration for the memory of theſe conquerors, that at laſt they confounded and identified them with the divinities they had introduced from Egypt into Europe. Mankind, in thoſe days of darkneſs, voluntarily deified thoſe who had communicated to them any neceſſary and uſeful piece of knowledge [a], and it was the Titans taught the Greeks the firſt elements of the arts and ſciences [b]. This is another proof, that thoſe princes came from Egypt, where human learning ſeems to have ariſen, and been brought to perfection ſooner than in any other country.

It appears further, that theſe firſt colonies did not contribute very much to civilize Greece. The Titans, it is true, brought ſome ſeeds of uſeful knowledge into that part of Europe [c], but theſe firſt ſeeds did not thrive in that ſoil. The monarchy founded by theſe foreign princes was but of ſhort duration. After the death of Jupiter, Neptune, and Pluto, the family of Saturn had no heirs in the right line, and the vaſt empire which they had conquered and formed fell to pieces, and Greece ſunk again into anarchy, ignorance, and barbariſm. It happened then, as it would certainly happen in America now, if the Europeans ſhould abandon it. The greateſt part, if not all the natives, would return again into their foreſts, and become ſavages.

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[x] L. 2. n. 50. See alſo Diod. l. 1. p. 109.

[y] Ibid.

[z] Diod. l. 1. p. 17.

[a] See Diod. l. 5. p. 381.

[b] Ibid. p. 374. &c. 381. &c.; Pauſan. l. 2. c. 11.

[c] See part 2. book 2. ſect. 2. c. 1.

The government of the Titans in Greece produced but few good effects. This was owing partly to its ſhort duration, and partly to their manner of life. Theſe conquerors neither built nor inhabited towns[d]. We do not hear ſo much as of one city founded by them. They lived in tents, which they uſually pitched on mountains and other places fortified by nature. It was not at all ſurpriſing, that, after the extinction of theſe monarchs, the Greeks ſo eaſily returned to their former habits.

The honour of civilizing Greece was reſerved for thoſe colonies, who, ſome time after the extinction of the Titans, went from Egypt and Phœnicia into that part of Europe. In the ſpace of two ages at moſt ſeveral ſtrangers at the head of different colonies arrived ſucceſſively in Greece, and poſſeſſed themſelves of different diſtricts, of which they became the ſovereigns. Theſe new chiefs at that time practiſed in Greece what has been ſome time or other practiſed in all nations, and is ſtill daily practiſed in America[e]. They collected ſome vagabond and wandering families, prevailed upon them to unite and live in ſociety, taught them the moſt uſeful and neceſſary arts of life, built them houſes, gave them laws, and brought them to ſubmit to government. Theſe ſettlements were attended with happier and more laſting conſequences than the ſhort-lived empire of the Titans.

The chief circumſtances of moſt of theſe events are pretty well known to us. We can tell nearly in what age the ſeveral leaders of theſe new colonies lived; particularly Ogyges, Inachus,

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[d] Hygin. fab. 148.

[e] Hiſt. des Incas, t. 1. p. 20, 22.; Nouv. relat. de la France equinox, p. 23.; Lettr. édif. *paſſim.*

Cecrops, Cadmus, Lelex, and Danaus. By theſe chiefs the kingdoms of Athens, Argos, Sparta, and Thebes, were founded one after another. We ſhall endeavour to unfold theſe events in their proper time and order. This will reduce what I have to ſay of Greece in this firſt part of my work to a few objects. I ſhall ſpeak only of two of theſe kingdoms at preſent, thoſe of Athens and Argos, and I have but a few words to ſay of each of theſe. The other kingdoms of Greece were not founded in the ages we are now conſidering.

§ I.

ATHENS.

Athens without doubt was one of the firſt ſtates of Greece that had a regular form of government. As Attica was but a dry and barren country, it was not expoſed to the jealouſy of its neighbours, and conſequently little liable to revolutions. Its firſt inhabitants ſtill kept poſſeſſion of their native ſoil[f]. This gave occaſion to their extravagant boaſts of their antiquity. They pretended they had ſprung from the ſoil they inhabited, like plants or other vegetables. They had even adopted a name to characteriſe this ridiculous pretenſion. They called themſelves *Autochthones* *, a name which mightily pleaſed and flattered the vanity of the Athenians.

It is not poſſible to determine preciſely when the Athenians began to have a ſettled form of government. The moſt probable opinion is, that Ogyges was their firſt king[g]; but we know not who this Ogyges was, nor the country from whence he came. It is evident, notwithſtanding what is ſaid by ſome Greek authors, that he was not a native of Greece. His name is a ſufficient evidence that he was a ſtranger[h]. But we cannot determine whether he came from Egypt, from Phœnicia, or from ſome province of the Leſſer Aſia[i]. We know nothing of his actions, but that he had a ſon by Thebe the daughter of Jupiter, named *Eleuſinus*, who built the city of Eleuſis[k]. They name ſeveral kings between Ogyges and Cecrops, but we are quite ignorant of their hiſtory[l]. In the reign of Acteus, the laſt of theſe unknown princes, Cecrops arrived in Attica at the head of an Egyptian colony, 1582 years before Chriſt[m]. It is here, properly ſpeaking, the hiſtory of Athens begins. We refer the ſequel of it to the ſecond part of our work.

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[f] Herod. l. 7. n. 161.; Thucyd. l. 1. p. 3.; Juſtin. l. 2. c. 6.

* Αυτοχθονες. This favourite epithet of the Athenians, ſignifies only *people born in the country where they live*, in oppoſition to ſtrangers. The common people of Athens perverted this to ſignify people ſprung from the earth. See what Plato makes Socrates ſay on this matter, in Menexen, p. 518. See alſo Iſoc. in panaeg. p. 65.; Cicer. orat. pro L. Flac. n. 26.

Iſocrates tells us, people of ſenſe at Athens took this word in a more moderate ſenſe: they underſtood by that epithet, that Athens was the moſt ancient of the Greek cities, and that it had been built by thoſe who, time immemorial, had been eſtabliſhed in the country known by the name of *Attica*. Iſoc. in panaeg. p. 64. 65. See alſo Herod. l. 7. n. 161.; Suid. *voce* Αυτοχθονες, t. 1. p. 389.; Acad. des inſcrip. t. 23. m. p. 120.

Hiſtory, as we ſhall ſee, deſtroys even this laſt pretenſion. Few things are better known than the time of the building of Athens.

The age of Ogyges, which may be fixed about 1831 years before the Chriſtian æra, was very remarkable for an inundation which happened in Greece. This event, ſo famous in antiquity, under the name of *the deluge of Ogyges*, happened about the year 1796 years before the Chriſtian æra. We have juſt now ſaid, that from that prince to Cecrops we have no connected hiſtory of the kings of Attica. The ancients attributed this ſilence to the ravages of that deluge. Some have even affirmed, that Attica was depopulated by it, that it lay waſte near two hundred years[n]. But this fact is by no means proved; on the contrary, it is evident from the teſtimony of all antiquity, that this was only a paſſing inundation occaſioned by the overflowing of the lake Copais, whoſe outlets at that time were ſtopt up[o]. This overflowing drowned ſome villages in Bœotia and Attica[p]; but the country in general ſtill continued to be inhabited. As to the events which happened in it, I have already ſaid they are totally unknown to us. I now proceed to the eſtabliſhment of the kingdom of Argos, whoſe origin and hiſtory are ſomewhat better known.

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[g] Euſeb. chron. l. 2. p. 66. ; Tatian. p. 274. ; Etym. mag. *voce* Ωγυγος. It would ſeem he was king of Boeotia too. Pauſ. l. 9. c. 5. ; Etym. mag. *loco. cit.*

[h] Bannier, expl. des fab. t. 6. p. 58.

[i] See Bianchini hiſt. univerſ. p. 286.

[k] Pauſ. l. 1. c. 38. p. 93. ; Euſeb. praep. evang. l. 10. c. 10. p. 489. C.

[l] Pauſ. l. 1. c. 14. ſub fin. ; Anton. liberal. metam. c. 6.

[m] Pauſ. l. 1. c 2. ; Diod. l. 1. p. 33.

[n] Afric. apud. Euſeb. praep. evang. l. 10. c. 10. p. 490. A.

[o] Strabo, l. 9. p. 623.

[p] Strabo, l. 9. p. 624; Pauſ. l. 9. c. 24. *init.*

§ II.

ARGOS.

THE kingdom of Argos, one of the firſt that was formed in Greece, was founded by Inachus [q]. Ancient tradition makes this prince the ſon of Oceanus and Thetis [r]; the meaning of which is, that he came by ſea into Greece. It is probable Inachus came from Phœnicia as his name ſeems to indicate [ſ]. This prince fixed in the Peloponneſe in the year 1822 before Chriſt. The ſequel of his hiſtory is little known, only that he had two ſons Phoroneus and Ægialeus, from his marriage with his ſiſter Meliſſa [t]. Phoroneus, being the eldeſt, inherited the kingdom of Argos [u]. Ægialeus founded a ſmall ſtate in Peloponneſus, called afterwards the kingdom of Sicyon [x]. It does not appear that Inachus had any ſettled habitation, but lived in tents like the Titans we have already ſpoke of [y].

Inachus only laid the foundation of the kingdom of Argos, his ſon Phoroneus brought it to perfection. He aſſembled the people who wandered in the neighbouring woods and mountains, perſuaded them to leave theſe gloomy receſſes, and build houſes near each other [z]. By theſe means this prince built a city and ſeveral villages [a]. It was not enough to collect theſe ſavages together, and perſuade them to live in ſociety; it was alſo neceſſary to teach them the means of procuring ſubſiſtence after their union. Phoroneus applied himſelf to this. He begun by teaching his new ſubjects an eaſy and commodious method of procuring and making uſe of fire[b]. He alſo inſtructed them in the means of obtaining and preparing proviſions, and, no doubt, taught them ſeveral other arts, the particulars of which are unknown to us. Still further to ſecure the peace and happineſs of his people, he gave them laws[c], and erected tribunals in each diſtrict for the adminiſtration of juſtice[d]. In a word, in order to ſoften and civilize their ſavage minds, he learned them to honour the Deity by public and ſolemn worſhip, he inſtituted ſacrifices, and conſecrated altars[e]. Such important ſervices made Phoroneus be looked upon by poſterity as one of the greateſt men who had appeared in Greece[f], and the greateſt king of that part of Europe[g].

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[q] Strab. l. 8. p. 578.; Ocell. Lucan. c. 3. in opuſcul. mythol. p. 530.
[r] Apollod. l. 2. init.
[ſ] Bannier. explic. des fab. t. 6. p. 39; Bibl. univ. t. 7. p. 401.
[t] Apollod. l. 2. *init*; Hygin. fab. 143.
[u] Apollod. l. 2. *init.* [x] Ibid. [y] *Supra*, p. 65. [z] Pauſ. l. 2. c. 15.
[a] Id. ibid.; Plin. l. 7. ſect. 57. p. 431.; Anonym. de incred. c. 1. p. 85.

After the death of Phoroneus, his ſon Apis ſucceeded to the throne[h]; and the kingdom of Argos was for a conſiderable time governed by a race of kings deſcended from this family. They reckon nine of theſe kings from Inachus to Gelanor. Danaus coming from Egypt, deprived this laſt of his kingdom, in the manner I ſhall relate in the ſecond part of this work. Theſe firſt kings were called *Inachidæ*, to diſtinguiſh them from thoſe who ſucceeded Danaus. As their reigns contain little remarkable, I do not think it neceſſary to give any account of them.

Let us now proceed to more general and intereſting objects; to conſider mankind in a new point of view; to examine what were the conſequences of the eſtabliſhment of government and laws, with regard to the arts, ſciences, commerce, and navigation; and to ſee, with reſpect to war, the effects which ambition has produced in it, and the progreſs which that fatal paſſion has made in the military art: in a word, let us follow the footſteps of the human mind, and endeavour to form a juſt idea of the ſtate of mankind in theſe remote ages, from the few hiſtorical monuments which remain. We ſhall begin with arts.

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[b] Pauſ. l. 2. c. 19.

[c] Clem. Alex. t. 1. p. 84.; Tatian. p. 274.; Euſeb. chron. l. 2. p. 65.

[d] Euſeb. ibid.; Syncell. p. 67. & 125.

[e] Hygin. fab. 143. & 225.

[f] Plat. in Tim. p. 1043; Clem. Alex. t. 1. p. 380.

[g] Hygin. fab. 143.; Plin. l. 7. ſect. 57. p. 412.

[h] Apollod. l. 2. p. 59.; Stephan. Byzant. *voce* Απια, p. 93.

BOOK II.

Of Arts and Manufactures.

THE invention and improvement of arts was one of the firſt and happieſt fruits of the reunion of families, and inſtitution of government. Neceſſity was the firſt preceptor of mankind. Neceſſity taught them how to employ the hands which Providence had given them, and to uſe the gift of ſpeech which they had received in preference to all the other creatures. But theſe firſt diſcoveries would never have been brought to any great perfection without the reunion of families, and the inſtitution of laws and government. By means of theſe the firſt rude inventions, the effects of chance or neceſſity, were brought to perfection by degrees. Accordingly we find, that the diſcovery and improvement of arts are aſcribed to thoſe nations which were firſt formed into regular ſtates and governments. It is by long experience, and by communicating their thoughts and obſervations to one another, that mankind has acquired the knowledge of that great multitude of arts which civilized nations have long enjoyed.

We cannot doubt, that many arts were known and practiſed before the deluge. Moſes tells us, that Cain built a city[a]; that Tubal-Cain underſtood the art of working metals, particularly iron[b], and his brother Jubal was the inventor of muſical inſtruments, &c.[c]. But the greateſt part of theſe arts periſhed in the deluge. Even thoſe which were preſerved by Noah and his ſons, could not be of any great ſervice to thoſe firſt men who repeopled the earth. The confuſion of tongues, and diſperſion of families followed ſo ſoon after the deluge, that the greateſt part of the deſcendents of Noah had not ſufficient time to make themſelves maſters of the arts which he could have taught them. Beſides, the long journeys they undertook after the diſperſion, made them forget what they had learned for want of practice. All this is acknowledged by the beſt writers of antiquity. They unanimouſly declare, that the arts were loſt in the deluge, and that it was a very long time before they were diſcovered again, becauſe the earth was almoſt a deſert, and the firſt men had little communication with one another[d]. I have already had occaſion to take notice of the extreme ignorance and barbarity of mankind in theſe firſt ages[e]. They were ſtrangers to the moſt common and ſimple notions, and unacquainted with thoſe arts which we eſteem the moſt neceſſary to life.

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[a] Gen. c. 4. v. 17. [b] Ibid. v. 22. [c] Ibid. v. 21.

Is it not, for example, aſtoniſhing, to think that there was a time when a great part of mankind knew nothing of fire, and were quite ignorant of its properties and uſe? This, however, is a truth atteſted by the moſt ancient and moſt unanimous tradition. The Egyptians[f], Perſians[g], Phœnicians[h], Greeks[i], and ſeveral other nations[k], acknowledged that their anceſtors were once without the uſe of fire. The Chineſe confeſs the ſame of their progenitors[l]. However incredible theſe facts may appear, yet they are confirmed, by what ſeveral writers, both ancient and modern, have declared of nations who were their cotemporaries, and in this ſtate of ignorance and barbarity when they knew them. Pomponius Mela[m], Pliny[n], Plutarch[o], and other ancient authors[p], ſpeak of nations, who, at the time they wrote, knew not the uſe of fire, or had but juſt learned it. Facts of the ſame kind are atteſted by ſeveral modern relations.

The inhabitants of the Marian iſlands, which were diſcovered in 1521, had no idea of fire. Never was aſtoniſhment greater than theirs, when they ſaw it on the deſcent of Magellan on one of their iſlands. At firſt they believed it to be a kind of animal, that fixed itſelf to, and fed upon wood. Some of them who approached too near being burnt, the reſt were terrified, and durſt only look upon it at a diſtance. They were afraid, they ſaid, of being bit, or leſt that dreadful animal ſhould wound them with his violent reſpiration; for theſe were the firſt notions they formed of the heat and flame [q]. Such too probably were the notions the Greeks originally formed of them [r].

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[d] Plato de leg. l. 3. p. 804. 805.
[e] See above, b. 1. p. 3.
[f] Diod. l. 1. p. 17.
[g] Sanchoniat. apud. Euſeb. p. 34. D.
[h] Bannier, explic. des fabl. t. 3. p. 201.
[i] Diod. l. 5 p. 384.; Plut. t. 2. p. 86. E.; Pauſ. l. 2. c. 29.
[k] See Heſiod. op. v. 50.; Lucret. l. 6. v. 953.; Virgil. georg. l. 1. v. 131. & 135.; Diod. l. 1. p. 12. l. 5. p. 381.; Vitruv. l. 2. c. 1.; Plut. t. 2. p. 956. B.; Porphyr. de abſt. l. 1. p, 29.; Lettr édif. t. 18. p. 225.
[l] Martini hiſt. de la Chine. t. 1. p. 20,; Eſſai. ſur les hierogl. des Egypt. p. 448.
[m] Book 3. p. 296.
[n] Book 6. ſect. 35. p. 345.
[o] Tom. 2. p. 956. B.
[p] Agatarchid. ap. Phot. c. 12. 19. 22. Solin. c. 30. p. 40. G.

The inhabitants of the Philippine and Canary iſlands were formerly as ignorant as thoſe I have been ſpeaking of [ſ]. They aſſure us, that in the iſle of Los Jordenas, the uſe of fire was lately unknown [t]. They ſay the ſame of ſeveral nations in America [u], particularly of the Amikouans, a people of South America, diſcovered but a little while ago [x]. Africa preſents us, even in our own days, with ſome nations in this deplorable ſtate of ignorance [y]. For this reaſon, no doubt, there were ſome nations anciently [z], as there are ſome at preſent [a], who eat the fleſh of animals quite raw. Theſe facts may enable us to form a judgment of the ſavage and barbarous ſtate of mankind after the confuſion of tongues, and diſperſion of families. I ſtill except thoſe of the poſterity of Noe, who continued to dwell in the plains of Shinar.

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[q] Hiſt. des iſles Mariames par le P. le Gobien, p. 44.

[r] See Plut. t. 2. p. 86. E.

[ſ] Hiſt. gen. des voy. t. 2. p. 229.; Hornius de origin. Americ. l. 1. c. 8. l. 2. c. 9.

[t] Ibid. That iſle blongs to China.

[u] Moeurs des ſauvages, t. 1. p. 40.

[x] Lettr. édif. t. 20. p. 224.

This nation dwells in a mountainous country, far from the ſea, and where there are no navigable rivers. La Condamine, relat. de la riviere des Amazones, p. 106.

[y] Mercure de France, Avril 1717, p. 62.

[z] Herod. l. 1. n. 202. l. 3. n. 98. 99.; Arrian. Indic. p. 522. 566.; Ariſt. de mor. l. 7. c. 6. t. 2. p. 91. A.; Martini, hiſt. de la Chine, t. 1. p. 20.; Extrait des hiſt. Chinois.; Anc. relat. des Indes & de la Chine, p. 5. 15.; Euſeb. praep. evang. l. 6. p. 274. B.

[a] Voyag. de J. de Lery, p. 46.; Rec. des voyag. au Nord, t. 1. p. 226. 242. t.

It is hard to conceive how mankind could ever be unacquainted with fire, conſidering how many ways it diſcovers and preſents itſelf to our eyes. How often do thunder and lightning bring down fire from heaven? The Egyptians [b] ſay they owed their knowledge of it to an accident of that kind. Fire is often kindled by the fermentation of certain ſubſtances thrown in a heap, by the ſtriking of flints, or rubbing of wood. The wind hath ſometimes ſet reeds and foreſts on fire [c]. It was to this the Phœnicians aſcribed their diſcovery of fire [d]. Vitruvius is of the ſame opinion [e]. In a word, without ſpeaking of vulcanos, we ſee fires kindled by nature, in almoſt every country [f]. In ſome places of Italy [g], and elſewhere [h], the earth ſets fire to any combuſtible matter that is laid upon its ſurface. In the province of Kamſi in China, there are burning wells, where the inhabitants dreſs their victuals by ſuſpending their pots over the mouths of them [i]. There are the like in Perſia, where the ancient ſovereigns of that country erected their kitchens [k]. In ſeveral countries there are ſprings of water ſo hot, that the inhabitants boil their meat in them,

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8. p. 174. 203. 378.; Lettr. édif. t. 4. p. 71. 72. t. 23. p. 239. t. 26. p. 286.; Jour. des ſcav. Juillet 1679, p. 111.; Merc. de France, Avril 1717, p. 62. Fevr. 1719, p. 42.; Rec. des voyag. de la comp. des Ind. Holland. t. 1. p. 579. t. 4. p. 579. 586. t. 5. p. 38. 101. 172.; Voyag. de Pyrad, part 2. p. 187.; Voyag. de Coreal, t. 1. p. 162. 231.; Voyag. à la baye d'Hudſon, t. 2. p. 29.; Hiſt. gen. des voy. t. 11. p. 26.; Laet. deſcript. des Ind. Occid. l. 6. c. 17. p. 219. c. 26. p. 233.

[b] Diod. l. 1. p. 17.

[c] See Sanchon. apud Euſeb. p. 35. A.; Thucyd. l. 2. n. 77. p. 147.; Lucret. l. 1. v. 896. &c. l. 6. v. 1097. &c.; Virtuv. l. 2. c. 1.; Diod. l. 3. p. 217.; Plin. l. 12. ſect. 42. p. 669.; Suid *voce* Δρυμός, t. 1. p. 629.; Mem. de Trev. Jan. 1749. p. 129.

[d] Sanchon. apud Euſeb. p. 34. D.

[e] L. 2. c. 1.

[f] Phyſique de Rohault, vol. 2. p. 237.; Journal des ſcav. Avril 1685. p. 104.; Colonne, hiſt. nat. t. 1. c. 4.; Hiſt. nat. de l'Iſlande, t. 1. p. 8. 9. 10.; Mem. de Trev. Jan. 1702, p. 9.; Merc. de France, Octob. 1726, p. 2249. 2254. Decemb. 1732, p. 2866, Jan. 1733, p. 129. Fevr. p. 34.

[g] Mem. de Trev. Octob. 1708, p. 1753.; Academ. des ſcienc. année 1706, M. p. 336.

[h] Piganiol de la Force, deſcript. de la France, t. 5. p. 12.

[i] Hiſt. de la Chine, par le P. Semedo, p. 30.; Martini, Atlas Sin. p. 37.; Colonne, hiſt. nat. t. 1. p. 377.

[k] Ariſt. de mirab. auſcult. p. 1153. 1163.

only by immerſion, without a pot or any other veſſel [l]. It has happened, and it ſtill happens ſometimes, that ſubterranean fires breaking out in the midſt of foreſts, woods, or copices, ſet them on fire, and burn them [m]. If there was a time then, when the greateſt part of mankind were ignorant of the uſe of fire, this was not owing to that element's concealing itſelf, but to their not knowing how to uſe it, how to have it at pleaſure, how to tranſport it, and how to rekindle it when it was extinguiſhed. All nations have carefully preſerved the names of thoſe to whom they believed themſelves indebted for ſo uſeful a diſcovery [n]. They conſidered them as the inventors of arts [o], becauſe in reality there is hardly any art that can diſpenſe with the uſe of fire.

We may form very probable conjectures about the methods which men at firſt uſed to procure fire, when they had occaſion for it, from ancient traditions, and from the preſent practices of the ſavages. They could not be long in diſcovering, that, by ſtriking two flints each againſt other, there went ſparks from them. They made good uſe of this diſcovery [p], but they could not always find flints for this purpoſe. Neceſſity, the mother of arts, ſoon taught them how to ſupply the want of them. They remarked, that, by rubbing two pieces of hard wood very ſtrongly againſt each other, they raiſed ſparks, nay, that, by rubbing for ſome time two pieces of rotten wood, they raiſed flame. Theſe diſcoveries were ſufficient to teach theſe firſt men how to procure fire when they pleaſed. The Phœnicians related that the colliſion of trees had made the diſcovery of fire [q]. The Chineſe ſay, that Sui-gin-ſchi, one of their firſt kings, taught them how to kindle fire by rubbing two pieces of wood ſtrongly againſt each other [r]. The

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[l] Journ. des ſcav. Mai 1665. p. 73; Hiſt nat. de l'Iſlande, t. 1. p. 23. &c.; Geographie de Varenius, t. 2. p. 374. edit. de Paris, *in* 12. 1755.

[m] Strabo, l. 12. p. 812.; Merc. de Franc. Juill. 1723. p. 223.; Acad. des ſcienc. t. 1. p. 426.

[n] See Sanchon. apud Euſeb. p. 34. D; Diod. l. 1. p. 17. l. 5. p. 381.; Martini, hiſt. de la Chine, t. 1. p. 21; Hygin. fab. 144.; Pauſ. l. 2. c. 19.

[o] Sanchon. Diod. Hygin. Pauſ. *locis cit.*

[p] See Plin. l. 7. ſect. 57. p. 415. [q] Sanchon. apud Euſeb. p. 34. D.

[r] Martini, hiſt. de la Chine, t. 1. p. 21.; Eſſai ſur les hieroglyph. des Egypt. p. 448.

Greeks had nearly the ſame tradition [ſ]. It is to this day the moſt common method practiſed by the ſavages [t].

Perſons who had ſo little knowledge as theſe firſt men, could not procure themſelves either great plenty, or very proper food. Every one went his own way, to gather the fruits and herbs which grew in the woods and fields [u]. They eat without any dreſſing, what the earth produced without any cultivation [x]. If we peruſe the annals of all nations, even of thoſe who were afterwards the moſt polite and learned, nothing can be more wretched and deplorable than the deſcriptions they give us of their primitive manner of life. The Egyptians originally lived on the roots and herbs which grew in their fields and marſhes, without any other way of diſtinguiſhing them but by the taſte [y]. The Greeks in like manner, in theſe firſt ages, fed on roots and wild fruits [z]. Acorns ſeem to have been their chief ſupport [a]. There was a cuſtom eſtabliſhed at Athens to recall the memory of theſe ages of ignorance and ruſticity. They preſented to the new-married pair, on the day of their nuptials, a baſket of acorns mixed with bread [b]. We muſt not however confound that kind of acorns on which the Greeks and other nations lived [c], with thoſe which are common in our woods. Theſe laſt are too bitter and unſubſtantial, ever to have furniſhed proper food for man. The acorns ſo often mentioned in ancient traditions, were of a very different quality. They very much reſembled cheſnuts, both in taſte and flavour. There are ſuch grow and are eaten at preſent in the

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[ſ] Plin. l. 4. ſect. 22. p. 212.; Solin. c. 11. p. 22. D.; Acad. des inſcript. t. 3. M. p. 385.; Tournefort, voyag. du Levant, t. 1. p. 244. 245.

[t] N. relat. de la France equinox, p. 178 179.; Hiſt. de la Virginie, p. 313.; Hiſt. nat. de l'Iſlande, t. 2. p. 201.; Voyag. de Dampier, t. 1. p. 143.

[u] *In medium quaerebant.* Vir. geor. l. 1. v. 127. Lucr. l. 6. v. 937. 938.

[x] See Strabo, l. 13. p. 885.; Vitruv. l. 2. c. 1. Athen. l. 1. p. 12. D.; Diod. l. 1. p. 11. l. 2. p. 151.; Ovid. metam. l. 1. v. 103. faſt. l. 4. v. 395.; Æl. var. hiſt. l. 3. c. 39.; Plut. t. 2. p. 158. A. p. 393. E.; Macrob. de ſom. Scip. l. 2. c. 10. p. 153. Extrait. des hiſt. Chin.; Martini. hiſt. de la Chin. t. 1. p. 20. 32.; Hiſt. des Inc. t. 1. p. 17.

[y] Diod. l. 1. p. 52. [z] Pauſ. l. 8. c. 1.

[a] Virg. georg. l. 1. v. 147. &c.; Lucret. t. 5. v. 1415.; Plin. l. 7. ſect. 57. p. 412.; Pauſ. l. 8. c. 1.

[b] Potter's archeolog. l. 4. c. 18.

[c] Strab. l. 10. p. 825. l. 15. p. 1066. 1069. l. 16. p. 1116.; A. Gell. l. 5. c. 6. p. 312.

South of Europe [d]. I imagine too, that under the name of acorns, the ancients comprehend ſeveral kinds of ſhell-fruits, as cheſnuts, walnuts, &c. [e].

There are ſtill ſome traces of this ancient manner of life to be ſeen in ſeveral countries. Herodotus ſpeaks of a nation in India that lived on herbage [f]. Agatarchides [g], Diodorus [h], Strabo [i], and ſome others [k], mention whole nations who ſubſiſted entirely on roots and plants. Modern travellers give an account of ſeveral nations who ſtill live in the ſame ſavage manner [l].

Woods, ſeas, and rivers furniſhed alſo ſome proviſions to the firſt men, according to the climates they inhabited. It is probable, that, in theſe ages, they made no diſtinction among animals [m]. Like the ſavages, they eat inſects, reptiles, and ſuch creatures as at the very ſight of which we are apt to ſhudder [n].

Let us add to theſe teſtimonies the authority of ancient cuſtoms, the faithful repreſentatives of the primitive ſtate of mankind. There has always been a great conformity between the ordinary food of men, and their ſacrifices. They have always offered to the gods a part of thoſe things which were the chief ſupport of their own lives. In the firſt ages, herbs, fruits, and plants, were their only offerings [o]. The Egyptians, when they went to their temples to perform their devotions, carried a handful of the herb they called *Agroſtis*, in remembrance of the great uſe it had been of to their anceſtors [p]. There was a time too, when all their libations were of water. Wine was not then diſcovered [q]. They came by degrees to offer honey [r], milk [ſ], oil [t], wine [u], flour [x], and at laſt animals, when theſe were become their ordinary food [y]. As they were ignorant in theſe ages of the art of ſeaſoning their meat with ſalt, the cuſtom was continued of putting no ſalt on the intrails of the animals offered in ſacrifice [z].

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[d] See Strab. l. 3. p. 233. ; Plin. l. 16. ſect 6.
They uſe this kind of acorns at all tables at this day in Spain. They eat them roſted like our cheſnuts. It was thus the Greeks uſed them formerly. See Plat. de rep. l. 2. p. 601. A.; Plin. l. 15. ſect. 25.; Suid. *voce* ’Εμαυτῳ βαλαν, t. 1. p. 719.

[e] See Porphyr. de abſt. l. 2. p. 128.; Pauſ. l. 8. c. 2. ; Iſidor. origin. l. 17. c. 7. p. 148.; Mem. de Trev. Juin. 1718, p. 1132.

[f] L. 3. n. 100. [g] Apud. Phot. c. 22. 23. [h] L. 3. p. 191.

[i] L. 11. p. 781. & 798. l. 16. p. 1116. l. 17. p. 1177.

[k] Lucret. l. 5. v. 16. & 17. l. 6. v. 932. &c.; Bibl. anc. & mod. t. 22. p. 21.

[l] Aſia di Barros, deca 1. l. 1. fol. 18. *verſo*.; Pietro d'ella Valle, lettre 11. p. 414.; Voyag. de Damp. t. 1. p. 292. t. 2. p. 134. & 156.; Gemelli, t. 2. p. 292.; Lettr. édif. t. 7. p. 42. t. 10. p. 190. t. 11. p. 82. t. 17. pref. p. 26. t. 18. p. 214. & 216. t. 25. p. 201. t. 23. p. 384.; Voyag. des Holland. t. 4. p. 586.; Voyag. de Benjamin, p. 56. 57.; Merc. de France, Juillet 1726, p. 1640. Juin 1755, t. 1. p. 141.
When I ſay with ancient writers, that the firſt men lived on roots and vegetables, I mean not to affirm that they eat no fleſh, but only that it was not their chief food.

[m] Diod. l. 1. p. 52.; Acoſt. hiſt. nat. des Ind. l. 7. c. 2.

[n] The ſavages eat rats, toads, ſerpents, inſects &c. See Hiſt. des Inc. t. 1. p. 300. t. 2. p. 216.; Geograph. Nub. p. p. 22.; Aſia di Barros, deca 1. l. 1. fol. 18.; Rec. des voyag. de la compag. des Ind. Holland. t. 5. p. 169. & 172. Rec. des voyag. au Nord, t. 8. p. 174. ; Leſcarbot, hiſt. de la N. France, p. 751.; Voyag. de Carpin, p. 37.; Voyag. de Coreal, t. 1. p. 175. & 232.; Voyag. d'Oyington, t. 2. p. 274.

Wretched and coarſe as the food of theſe firſt men was, they were not in a capacity to procure it in ſufficient quantities. For want of proper inſtruments and neceſſary ſkill, they muſt needs deſtroy and waſte a great deal of their fruits and plants; like the ſavages who cut down the tree when they want to pull its fruit [a]. Beſides, they had no ſuitable arms for hunting, nor tackle for fiſhing. Sticks and ſtones were the only weapons at that time [b]; and even afterwards, when they had invented arrows and pikes, they knew of no other way of arming them, but with pointed reeds, flints, or fiſh-bones. We may judge of the circumſtances of theſe firſt men in this reſpect, by thoſe of ſeveral nations, mentioned both by ancient [c] and modern [d] authors. In theſe firſt ages too, they knew not the way of fiſhing with nets, an art which no ſavages are acquainted with [e]. They made uſe of lines [f], with hooks made of wood, fiſh-bones, and other rude materials [g]. In a word, they knew nothing of the art of breeding and feeding flocks, or of laying up any proviſion againſt a future ſcarcity.

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[o] Theophr. apud Porphyr. de abſtin. l. 2. p. 156.; Euſeb. praep. evang. l. 1. c. 9. p. 28.; Bianchini, iſtor. univ. p. 156.

[p] Diod. l. 1. p. 52.

[q] Theophr. *loco cit.*; Hygin. poet. aſtr. l. 2. c. 29.; Bianchini, p. 307.

[r] Theophr. apud Porphyr. de abſt. p. 156.; Plato de legib. l. 6. p. 875. C.; Plut. t. 2. p. 672.

[ſ] Ovid. faſt. l. 4. v. 369.; Plin. in praefat. p. 3.

[t] Theophr. *loco cit.*; Gen. c. 28. v. 18.

[u] Theophr. *loco cit.*; Gen. c. 14. v. 18.

[x] Plato, Plin. *locis cit.*

[y] See Porphyr. de abſt. l. 2. p. 125. &c.

[z] Athen. l. 14. p. 661. A.

[a] Voyag. de Damp. t. 4. p. 185. & 186.; Lettres édif. t. 11. p. 315.
They do this probably becauſe they know no better way of gathering the fruit; and as they change their place of reſidence ſo often, they give themſelves no concern about the intereſt of their ſucceſſors.

[b] Hygin. fab. 274.; Diod. l. 1. p. 28.; Cedren. fol. 19.

It is not at all ſurpriſing, that having only ſuch precarious reſources, they often found themſelves expoſed to all the horrors of famine. It is to theſe terrible extremities, I am perſuaded, we muſt aſcribe that ſhocking practice, of devouring each other, which in ancient times prevailed in ſeveral places. That there was a time when ſome men were ſo horridly ſavage, as to make human fleſh their food, is a fact ſo well atteſted, as to admit of no diſpute [h]; a fact confirmed by the example of ſeveral modern nations [i] in both worlds, to whom this kind of food is ſtill familiar. There are people both in Aſia [k], Africa, and America [l], who hunt men as we do wild beaſts. They endeavour to take them alive, carry them to their huts, and kill them when they find themſelves preſſed with hunger. It is, I repeat it, the want of food that has been, and ſtill is the occaſion of theſe horrors [m]. Hiſtory furniſhes us with too many examples of the direful effects of famine, even in civilized nations [n]. Nay, in this deplorable extremity, mothers have been known to devour their own children [o]; and it is ſufficient to reflect upon thoſe ſenſations with which ſome ſailors reduced to the laſt extremity, have found themſelves to be ſenſibly affected, to have an idea of what man is capable of in thoſe cruel moments [p]. Man-eating therefore would not be entirely laid aſide, till mankind had found out methods of ſecuring a ſubſiſtence; and if this horrible practice ſtill ſubſiſts among ſome nations, it is an effect of the ignorance and barbarity of their anceſtors *.

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[c] See Arrian. Indic. p. 565.; Agatarchid. apud Phot. p. 1333.; Diod. l. 3. p. 185. & 191.; Tacit. de mor. Germ. n. 46.

[d] Leſcarbot. hiſt. de la N. Franc. p. 773.; Rec. des voyag. au Nord, t. 8. p. 175.; Lettres édif. t. 1. p. 132. t. 7. p. 43.; Voyag. de Dampier, t. 1. p. 94. t. 2. p. 142.

[e] Relat. de la France equinox, p. 156.; Voyag. de Dampier, t. 2. p. 142.

[f] Sanchon. apud Euſeb. p. 35. C.

[g] See hiſt. nat. de l'Iſlande, t. 2. p. 204. &c.; Voyag. de la baye d'Hudſon, t. 2. p. 23.; Rec. des voyages qui ont ſervi à l'établiſſement de la compagnie des Indes Holland. t. 4. p. 560. t. 1. p. 578. t. 5. p. 37.; Hiſt. des Incas, t. 1. p. 82. 83.; Voyag. de J. de Lery, p. 170. 171.

[h] See *ſupra*, book 1. p. 3. & 59.

[i] See ibid. p. 4. [k] Merc. de France, Avril 1717. p. 65.

[l] Lettres édif. t. 10. p. 231. t. 23. p. 344. t. 25. p. 9.; Leſcarbot, hiſt. de la Nouv. France, p. 857.; Voyag. de Coreal, t. 1. p. 162. & 228.; Mem. de Trev. Fevrier 1702, p. 91.

[m] See l'hiſt. des Incas, t. 1. p. 253. 255. 283. 300.; Voyag. de la baye d'Hudſon, t. 2. p. 117.

Theſe firſt men being ſo little acquainted with the nature and uſe of fire, could not dreſs and prepare their food in a proper manner. They contented themſelves with gathering a few roots or herbs, rubbing them between their hands, or bruiſing them betwen two ſtones, and then expoſing them a little to the heat of the ſun. They managed much in the ſame manner their fleſh and fiſh, when they were ſo fortunate as to find any. Agatharchides [q], Arrian [r], Diodorus [ſ], Strabo [t], Pliny [u], and even ſome modern relations [x], ſpeak of nations who had no o-

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[n] See Diod. eclog. ex libro 36. t. 2. p. 528. 529.; Strab. l. 4. p. 308.; Olympiodor. apud Phot. p. 189.; Procop. de bello Goth. l. 2. c. 20.: Leſcarbot, hiſt. de la Nouv. France, p. 60.; Hiſt. de la Virginie, p. 32.; Lettr. édif. t. 21. p. 165.; Voyag. de Carpin, p. 37.; Laët, deſcript. des Indes Occid. l. 4. c. 3. p. 107.

[o] See 2 Kings c. 6. v. 28. 29.; Jerem. Lament. c. 4. v. 10.; Joſ. de bello Jud. l. 6. c. 21.; Olympiodor. apud Phot. p. 189.

[p] See J. de Lery, voyag. du Breſil, p. 368.; Rec. des voyag. de la compagn. des Indes Holland. t. 4. p. 650.

* Some authors have reported that there were formerly public markets for human fleſh in ſome countries of Aſia, Africa, and America. Anc. relat. des Ind. & de la Chine, p. 55. & 132.; Bibl. univer. t. 2. p. 384.; Hiſt. des Incas, t. 1. c. 12. p. 51.; Hiſt. gen. des voyag. t. 5. p. 97. 227. t. 4. p. 630.; Mercure de France, Octob. 1717, p. 84.; Laet, deſcript. des Ind. Occid. l. 5. c. 15. p. 166.

It appears very improbable to me, that a people ſo far civilized as to have public markets, would permit the bodies of their fellow-men to be expoſed to ſale in them; unleſs we could ſuppoſe that they had contracted ſuch an appetite for this kind of food, that they could not relinquiſh it even when they could procure other more natural aliments.

[q] Apud Phot. c. 12. 19. 22.

[r] Indic. p. 566.

[ſ] L. 3. p. 185. 189. 191.

[t] L. 16. p. 1116. A. p. 1118. C.

[u] L. 7. p. 374. lin. 18.

[x] Aſia di Barros, deca 1. fol. 18. *verſo.*

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other way of dreſſing their food, but by expoſing it to the ray of the ſun. Even after the diſcovery of fire, mankind were a conſiderable time before they hit upon proper and commodious methods of employing that element in the preparation of their food. We may judge of the fooliſh and bungling methods uſed by the firſt men, from thoſe which modern travellers tell us are practiſed by ſome nations at this day.

The inhabitants of the Inſulæ Auſtrales diſcovered in 1615, knew no other way of roaſting hogs but by putting red-hot ſtones into their bellies [y]. There are ſeveral nations, who at this day diſcover no leſs ignorance in the manner of boiling their victuals. They pour water into the hollow of ſome rock, or great ſtone, and then throw burning coals, or ſtones made red-hot, into the water, which by this means is ſufficiently heated to boil their meat [z]. The difficulty and inconvenience of ſuch methods made them endeavour to find out others more proper and eaſy. They contrived veſſels for boiling water more commodious than rocks, or great ſtones. The ſavages of New France boil their water in a kind of wooden troughs, by putting ſtones heated in the fire into it, and changing them from time to time [a].

Mankind muſt ſoon have been diſguſted with theſe tedious and uncouth methods of preparing their food. They would naturally try to procure veſſels, which receiving the impreſſions of the fire from without, would communicate it to the water within them. The point was to find materials, both common and eaſy to be wrought, and at the ſame time capable of reſiſting the action of fire ſo long as was neceſſary for boiling their meat. This was a diſcovery only to be made by many trials. We may be convinced of this by the following examples. The ſavages of Forbiſher's Straits uſed a kind of boiler made of the ſkins of fiſh newly killed [b]. The inhabitants of the weſtern iſlands of Scotland formerly uſed the ſkins of animals, newly flayed, for the ſame purpoſe[c]. The Oſtiakes at this day dreſs their victuals in kettles made of the bark of trees[d]. In Siam the common people have no other way of dreſſing their rice, but by putting it upon the fire in a cocoa ſhell; the ſhell burns while the rice is dreſſing, but the rice is done enough before the ſhell is quite conſumed[e]. The inhabitants of Amboyna and Ternate make uſe of bamboos, or hollow reeds, for the ſame purpoſe[f].

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[y] Rec. des voyag. qui ont ſervi à l'établiſſement de la compagn. des Indes Holland. t. 4. p. 583.

[z] Hiſt. des iſles Antilles, p. 17.; Relat. de la Gaſpeſie, p. 51.

[a] Leſcarbot, hiſt. de la Nouv. France, p. 805.; Moeurs des ſauvages, t. 2. p. 87.; Acoſta, hiſt. des Indes Occid. l. 3. c. 2. fol. 174.

[b] Rec. des voyag. au Nord, t. 1. p. 227.

Theſe were very defective and rude expedients. They required to be renewed every moment. Neceſſity, the mother of invention, ſoon taught them more commodious methods. What we read in the hiſtory of a ſavage nation, may ſuggeſt unto us, by what ſteps men arrived at the art of making more durable and commodious veſſels. In the relation of a voyage to Terra Auſtralis, we are told that the inhabitants of that country boiled their food in pieces of hollow wood, which they ſet upon the fire, and they prevented their burning by dawbing them with a fattiſh kind of clay[g].

It was ſome ſuch practice as this that probably gave men the firſt idea of making earthen ware. This experiment having taught them, that there were ſome kinds of clay which would reſiſt the action of fire, it was a natural and eaſy thought to take away the wood, and make uſe of the outward cruſt when ſufficiently burnt and hardened. It is a remark of Plato's, that the potters art was exceeding ancient, becauſe it did not require the uſe of metals[h]. It is probable, that at firſt they knew not how to give their earthen ware that great hardneſs and varniſh in which their great excellence conſiſts. Their firſt veſſels were like thoſe of the ſavages, pieces of clay or fat earth dried in the ſun, or baked in the fire[i]. They were quite ignorant of the art of varniſhing theſe veſſels with lead[k], an art which was diſcovered by a mere chance, as we ſhall have occaſion to mention by and by [l].

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[c] Reſpubl. ſive ſtat. Scot. & Hibern. diverſ. autor. p. 33. See alſo Herod. l. 4. n. 61.

[d] Rec. des voyag. au Nord, t. 8. p. 43.

[e] Hiſt. gen. des voyag. t. 9. p. 248.

[f] Rec. des voyag. qui ont ſervi à l'établiſſement de la compagn. des Indes Holland. t. 3. p. 322; Chardin, t. 4. p. 171. 172.

[g] Mem. for eſtabliſhing a Chriſtian miſſion in the third world, or Terra Auſtralis, p. 15. & 16.

[h] De leg. l. 3. p. 805. C.

[i] Moeurs des ſauvag. t. 2. p. 87.

The diſcovery and introduction of arts by degrees relieved mankind from many of thoſe wants and calamities with which they had been oppreſſed, immediately after the confuſion of tongues and diſperſion of families. Their reunion, and eſpecially the eſtabliſhment of laws, contributed greatly to this happy change. When families were reaſſembled, they began to ſtudy the arts; but they never could have formed great ſtates, or carried arts to much perfection, without ſome means of providing for the ſubſiſtence of great numbers in one fixed and ſettled place. This never could have been done but by the diſcovery of agriculture.

All nations have given the honour of this diſcovery to their firſt ſovereigns. The Egyptians ſaid, that Oſiris made men deſiſt from eating each other, by teaching them to cultivate the earth [m]. The Chineſe annals relate, that Gin-hoang, one of the firſt kings of that country, invented agriculture, and by that means collected men into ſociety, who before had wandered in the fields and woods like brute beaſts [n]. The tradition of the Greeks, that anthropophagy ceaſed upon the diſcovery of honey, means the ſame thing, that men deſiſted from preying upon each other as ſoon as they found any other food [o]. Ancient hiſtorians mention the great pains taken by Alexander the Great to inſtruct ſeveral barbarous nations he met with in the courſe of his conqueſts, in the art of agriculture [p]. This has been done in America in our own time [q]. It is with the ſame view, to prevent the horrors men may be driven to by famine, that all civilized nations take care to lay up proviſions againſt a future ſcarcity [r].

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[k] Voyag. de Frezier, p. 70.

[l] *Infra,* c. 4.

[m] Diod. l. 1. p. 17.; Plut. t. 2. p. 356. A.

[n] Mart. hiſt. de la Chin. t. 1. p. 18.

[o] Schol. Pind. ad Pyth. 4. v. 107. p. 219.

[p] Strabo, l. 11. p. 786. 787.; Plut. t. 2. p. 328. C.; Plin. l. 6. ſect. 25. p. 325.

[q] Hiſt. des Incas, t. 1. p. 21. 300. 301.; Nouv. relat. de la France equinox, p. 23.; Lettr. édif. t. 2. p. 179.

[r] See Gen. c. 41. v. 35. &c.; Hiſt. des Incas, t. 1. p. 21. 192. 237. t. 2. p. 94.

The reunion of families and inſtitution of political ſociety, by giving birth to arts, procured to mankind all the conveniencies and ſweets of life. All political ſocieties, however, have not made equal improvements in the arts. Theſe have been carried to different degrees of perfection by different people. It will be proper to explain this a little.

At the commencement of ſocieties, their firſt care would be to provide the neceſſaries of life. But the means of doing this would be more or leſs perfect according to the climate and genius of the different people. In ſome countries they would begin by improvements in the arts of hunting and fiſhing [s]. Hunting eſpecially, was the principal employment of a great part of mankind in the firſt ages of the world. They were obliged to this in order to defend their own lives againſt the aſſaults of wild beaſts, as well as to procure ſubſiſtence [t]. There are ſtill a great many nations in both continents, whoſe whole employment is hunting and fiſhing [u].

But the more induſtrious and diſcerning part of mankind would ſoon obſerve, that amongſt that innumerable multitude of animals which were ſpread over the face of the earth, there were ſome which lived in droves and herds, and were much more tame and tractable than the reſt. They would endeavour to make themſelves maſters of theſe, to confine them in incloſures, to make them multiply that they might always have a ſufficient number of them at their command. A great part of the world in theſe firſt ages, and for a long time after, derived their chief ſubſiſtence from their flocks [x]. We know ſeveral numerous and powerful nations who at this day follow this way of life, and are furniſhed with every thing they ſtand in need of from their flocks and herds [y].

Men would next apply themſelves to examine the productions of the earth. This, without any cultivation, preſented them with a great many plants and fruits which afforded a very agreeable and ſubſtantial nouriſhment. They would begin their obſervations upon theſe, by diſtinguiſhing the beſt kinds, eſpecially ſuch as kept longeſt after they were gathered [z]. They would next endeavour to find out the beſt ways of uſing them, to diſcover the arts of increaſing their quantity and improving their qualities by cultivation. It is to the diſcovery of agriculture we are indebted for that prodigious number of arts and ſciences we now enjoy. As long as mankind had no other way of ſubſiſting but by hunting, fiſhing, and feeding their flocks, arts made but very little progreſs. This kind of life obliged them to remove often from place to place, and did not require the knowledge of many arts. Thoſe nations who do not practiſe agriculture, have ſtill but a very ſlender acquaintance with the arts and ſciences. The cultivation of the earth obliged thoſe who applied themſelves to it, to fix in a certain place, and to find out the various arts they ſtood in need of.

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[s] Sanchon. apud Euſeb. p. 35. B.

[t] See *infra*, book 6. c. 1.

[u] Nat. hiſt. de l'Iſland. t. 2. 221. t. 1. p. 283.; Rec. des voyag. au Nord. t. 8. p. 16. t. 1. p. 8.; Lettr. édif. t. 10. p. 200. 315. 316. t. 11. p. 376. t. 23. p. 222.; Hiſt. des Incas, t. 1. p. 330.; Voyag. de Frezier, p. 130.; Voyag. de Damp. t. 2. p. 142. 143.; Nouv. relat. de la France equinox, p. 26.; Bib. univ, t. 3. p. 519.

[x] Plato de leg. l. 3. p. 804. &c.; Var. de re ruſt. l. 2. c. 1.

[y] The Tartars, Arabians, *&c.*

CHAP. I.

Agriculture.

AGriculture conſiſts of ſeveral branches. By this word we underſtand the art of raiſing all kinds of trees, plants, fruits, and grains. But as tillage is the moſt neceſſary and important branch of agriculture, we ſhall begin with it.

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[z] Diod. l. 1. p. 12.

ARTICLE I.

Of Huſbandry.

HUſbandry, or the culture of grain, is an art ſo toilſome, tedious, and complicated, and requires ſuch great attention and ſuch various knowledge, that it is no wonder it was ſo long unknown to the greateſt part of mankind. It is difficult to conceive how men attained at firſt the knowledge of corn and other grains which are cultivated. We do not ſee at preſent any wheat, rye, barley, oats, or rice growing ſpontaneouſly on our commons. Are we to ſuppoſe then, that certain kinds of *herbage* which grow in all countries, include in them the eſſence and principles of all the kinds of grain which make our principal food at preſent? Shall we ſay, that culture makes them unfold their latent qualities, brings them to perfection, and at laſt, by reiterated efforts, raiſes them to wheat, rye, barley, oats? *&c.* Experience indeed has taught us, that culture renders ſome fruits much more beautiful and excellent than they naturally grow, nay brings them to ſo great perfection that they will hardly be taken for the ſame ſpecies. But it is ingrafting makes this great change in the nature of fruits; and this is an operation which cannot be performed on *graſſes*. As to ſimple cultivation, it is a great miſtake to imagine, that it can ever change the fundamental eſſence and ſpecies of grains. Some authors, it is true, have formerly advanced this [a]; but the contrary is at preſent univerſally known and acknowledged [b]. Grains were created ſuch as they are at preſent. The ancients even tell us of ſome countries where corn grew ſpontaneouſly [c]. And that we know not any climate at preſent that produces wild wheat, rye, barley, or oats of itſelf, is probably owing to the want of diligent inquiry. Nay, if we may believe ſome modern relations, theſe grains grow naturally in ſome places at this day [d].

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[a] Theophraſt. hiſt. plant. l. 2. c. 3. & c. 5. l. 8. c. 6. de cauſ. plant. l. 4. c. 6.; Plin. l. 18. ſect. 20. p. 111.

[b] See acad. des ſciences, ann. 1708. mem. p. 85.; Mercure de France, Fevr. 1730, p. 299.; Duhamel, traité de la culture des terres, p. 145.; Mem. de Trev. Mai 1714, p. 814.

[c] Plato, in Menex. p. 512.; Ariſt. de mirab. auſcult. p. 1154. A.; Theoph. hiſt. plant. l. 4. c. 5. p. 78.; Diod. l. 1. p. 17. l. 5. p. 331. & 384.; Strabo, l. 15. p. 1017.; Plin. l. 18. ſect. 13. p. 108.; Syncell. p. 28. See alſo what Herodotus ſays of a kind of corn uſed in India, l. 3. n. 100.

Agriculture is one of thoſe arts which the deluge did not deſtroy entirely. The ſcriptures tell us, that Noah underſtood and practiſed it [e]; and it is highly probable he would inſtruct his poſterity in the knowledge of it. But the confuſion of tongues, and diſperſion of families, made this art to be forgotten by the greateſt part of mankind. This diſcovery, however, was not entirely loſt by thoſe families who continued in the plains of Shinar, or near them. Some knowledge of huſbandry too might be preſerved by thoſe families which ſettled early in countries where the ſoil was looſe and light, and very fertile. All theſe conjectures are founded on hiſtory, which informs us, that the inhabitants of Meſopotamia, Paleſtine, Egypt, and perhaps China, applied themſelves to huſbandry in the very firſt ages. The knowledge of huſbandry among the Babylonians was as ancient as their hiſtory [f]. We cannot doubt the great antiquity of this art in theſe countries. Moſes tells us that Nimrod and Aſſur built ſeveral cities: it is impoſſible to imagine how they could do this, without the aſſiſtance of agriculture [g]. The Phœnician traditions, ſupported by ſcripture, repreſented huſbandry as known among them in the remoteſt ages [h]. It is ſaid, that Iſaac, when he dwelt in Paleſtine, ſowed and reaped an hundred-fold [i]. The Egyptians gave the honour of this diſcovery to Iſis, and her huſband Oſiris [k]. Huſbandry muſt have been very early known in that country. We ſee that Abraham in a time of famine retired into Egypt [l]. Jacob ſent his ſons thither to buy corn in the like circumſtances [m]. The Chineſe may diſpute with any of theſe nations, the antiquity of their acquaintance with this art, for they pretend to have learned it from Chin-nong the ſucceſſor of Fo-hi [n]. However this may be, it was from theſe countries, no doubt, and ſome others, that the art of cultivating grain was brought in proceſs of time into other climates. The Greeks, for example, ſaid they learned agriculture from the Egyptians [o]. The Romans believed this art had been brought into Italy from Africa and Greece [p].

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[d] Leſcarbot, hiſt. de la N. France, p. 251. 255. & 261.; Lettr. édif. t. 11. p. 385. t. 25. p. 71.; Hiſt. nat. de l'Iſlande, t. 1. p. 250.; Laet, deſcript. des Indes Occid. l. 2. c. 1. p. 34.

[e] Gen. c. 9. v. 20.

[f] Beroſ. *apud* Syncel. p. 28 & 20.

[g] Gen. c. 10. v. 10. 11. & 12.

[h] Sanchon. *apud* Euſeb. p. 26. C.

[i] Gen. c. 26. v. 12.

[k] Diod. l. 1. p. 17. & 18; Plut. t. 2. p. 356. A.

[l] Gen. c. 12. v. 10.

[m] Gen. c. 42. v. 2,

It is not unlikely that ſome nations might make the diſcovery of this art themſelves. Some of thoſe families who in their ſavage and vagabond ſtate had loſt the knowledge of it, might come into diſtricts where grain in ſmall quantities grew ſpontaneouſly; they would naturally ſtudy to improve this gift of Providence. But it would be with great difficulty and by very ſlow degrees, that ſuch a people attained this art without a maſter.

In the firſt place, they muſt have invented tools and inſtruments neceſſary for huſbandry, and the number of theſe is conſiderable. The firſt huſbandmen tilled the ground by mere ſtrength of arm; their tools were extremely clumſy and imperfect [q]. Such was the ſtate of the Peruvians at the diſcovery of that country. They had no ploughs, nor beaſts of burden. They turned the ſoil with a kind of ſhovel; and when it was properly prepared, dropt the ſeed into little holes made with the end of a ſtick [r] There are a great many nations even at this day, who know no better methods [ſ]. The ſavages of New France till their grounds with a wooden inſtrument, not unlike the hoe of our vine-dreſſers [t]; ſome do it with ſhovels [u], and others even with wooden hooks [x]. The common inſtrument uſed by the negroes of Gambra for turning the earth, is a kind of wooden ſhovel, like their oars [y];

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[n] Martini, hiſt. de la Chine, l. 1. p. 32.; Hiſt. gen. des voyages, t. 6. p. 196.

[o] Diod. l. 1. p. 34. l. 5. p. 385.

[p] Feſtus, *voce* Libycus campus, p. 210. Cicero, t. 4. p. 478.

[q] Diod. l. 3. p. 232. 233.; Plut. t. 2. p. 378. & 379.

[r] Conquête du Pérou, t. 1. p. 47.; Hiſt. des Incas, t. 2. p. 83.

[ſ] See l'hiſt. gen. des voyag. t. 3. p. 117.

[t] Leſcarbot, hiſtoire de la Nouv. Franc. p. 778.

[u] Lettr. edif. t. 12. p. 10.

[x] Leſcarbot, p. 834.; Moeurs des ſauvages, t. 2. p. 76. & 106.; Voyag. de Coreal, t. 1. p. 33.

[y] Hiſt. gen. des voyag. t. 3. p. 188. & 189.

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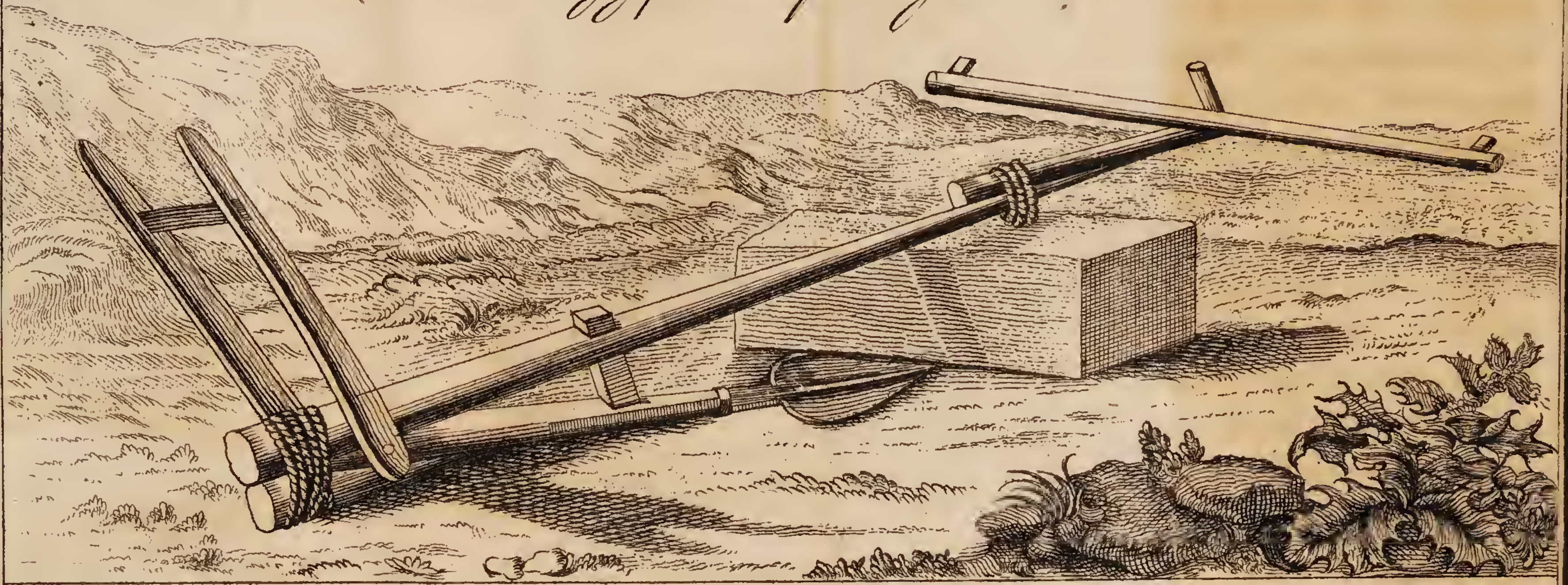
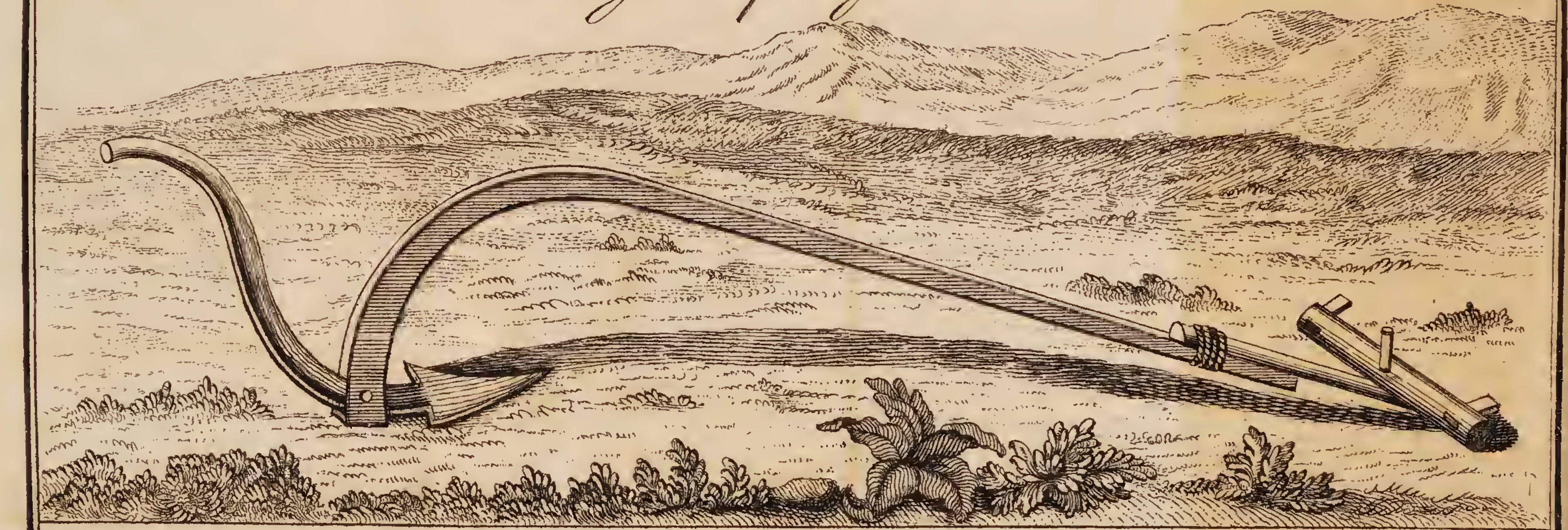
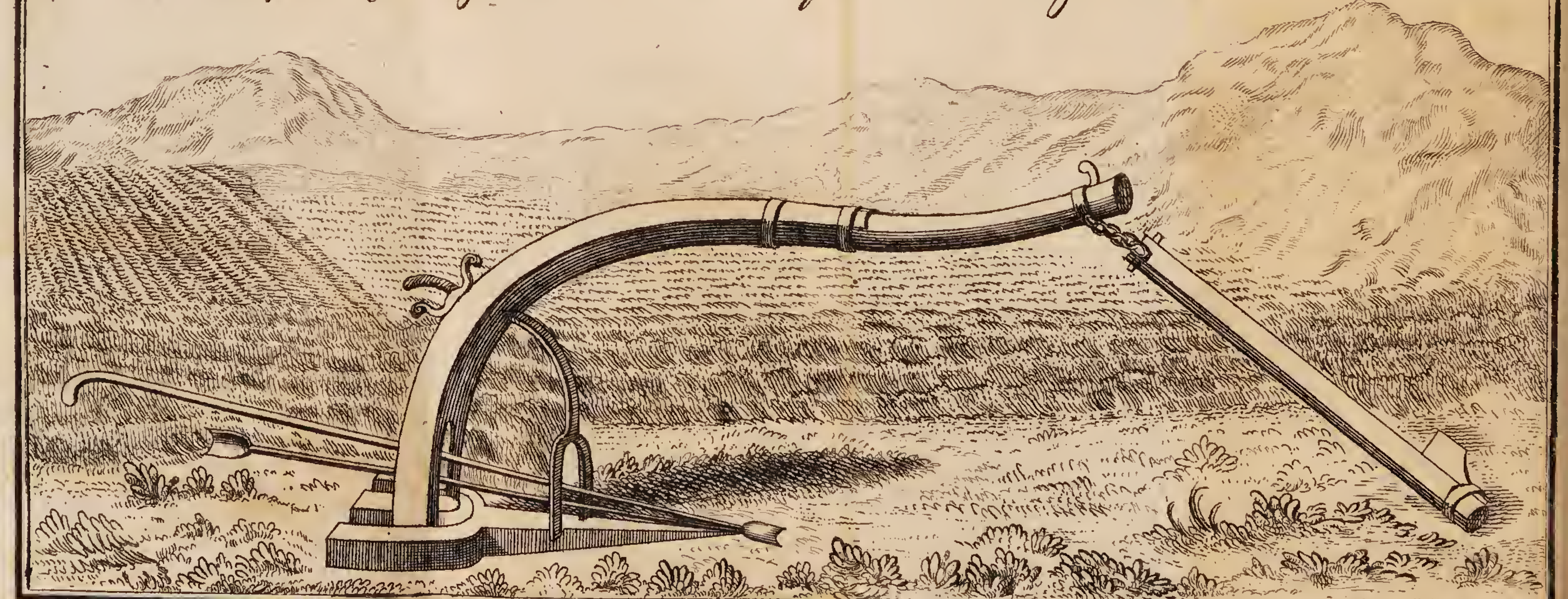
An Egyptian plough.



A Greek plough.



A plough of the Southern provinces of France.



J. Phinn Sculpt.

others have nothing but a ſort of trowels [z]. The negroes of Senegal go five or ſix of them into a field, and turn the ſoil with their ſwords [a]. The original inhabitants of the Canaries performed this work with the horns of oxen [b].

The people who uſed theſe bungling methods muſt have loſt all traces of this art, otherwiſe they would have employed more commodious and more effectual inſtruments. Several nations in the very firſt ages after the diſperſion were acquainted with machines, which, by turning up the earth in an expeditious and effectual manner, ſaved them much toil, and procured them far more abundant harveſts. The plough was then undoubtedly uſed in ſome countries. We have a proof of this as to the Egyptians, in the worſhip paid by that people to the ſacred bulls, whom they called Apis and Mneves. Theſe well-known and very ancient rites of worſhip, were founded on the great ſervices they believed theſe animals had rendered to thoſe princes they eſteemed the inventors of agriculture [c]. I have already ſaid, the Egyptians believed they were indebted to Oſiris for this art [d]. This prince was alſo regarded as the inventor of the plough [e]. They even ſaid he had taught the Scythians to make uſe of oxen for tillage [f]. It appears from ſcripture that the practice of ploughing was eſtabliſhed in Egypt in the time of Joſeph [g]. It was as ancient in Paleſtine. The Phœnicians, the firſt inhabitants of that country, aſcribed the invention of the plough to Dagon ſaid to be the ſon of heaven [h]. We have juſt now mentioned, that when Iſaac was in Paleſtine, he ſowed and reaped an hundred-fold; a fact which neceſſarily ſuppoſes that the art of tillage was well known in that country. We ſee too, that, in the days of Job, they ploughed with oxen in Arabia [i]. In a word, the Chineſe pretend that they received the plough from Chin-nong the ſucceſſor of Fo-hi [k].

The ſtructure of the firſt ploughs was very ſimple. That machine, at preſent complicated enough, in ſome countries originally conſiſted only of one beam of wood, ſo bent that the one end of it ſunk into the ground, and they yoked the oxen to the other: it had no wheels; they had only added one handle, by which the ploughman directed and turned it as he pleaſed. Such was the ancient plough of the Greeks [l]. Such at this day is that of the inhabitants of La Conception in Chili; their plough conſiſts only of the crooked branch of a tree, and is drawn by two oxen [m]. Ploughs were afterwards made of two pieces, the one long, to which they yoked the oxen; the other ſhort, which ſerved as a plough-ſhare, for cutting the earth. Theſe ploughs were ſtill very ſimple, and had no wheels. We may judge of this by the deſcription which the Chineſe hiſtorians have given of that inſtrument, of which they believe Chin-nong the ſucceſſor of Fo-hi was the inventor. They ſay, "That anciently men lived on fruits, plants, and the fleſh of "animals, without knowing how to plough or ſow. But "Chin-nong the ſucceſſor of Fo-hi, obſerving the difference "of ſeaſons and of ſoils, cut down a piece of wood, which "he called *Su*, to which he yoked oxen; he then bent and "hardened in the fire another piece of wood, of which he "made a plough-ſhare; and thus he taught men to plough the "ground [n]."

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[z] Hiſt. gen. des voyag. t. 5. p. 67. [a] Ibid. t. 2. p. 302. [b] Ibid. p. 229. & 252.

[c] Diod. l. 1. p. 25. [d] *Supra*, p. 87.

[e] *Primus aratra manu ſolerti fecit Oſiris.* Tibul. l. 1. eleg. 7. v. 29.

[f] Euſtath. *ad* Dionyſ. Perieget. v. 376. [g] Gen. c. 45. v. 6.

[h] Sanchon. *apud* Euſeb. p. 37. D. [i] Chap. 1. v. 14. See our diſſertation.

[k] Martini, hiſt. de la Chine, l. 1. p. 32.

It is probable, that the Egyptians uſed a plough much of the ſame kind in the earlieſt times. We have a deſcription of it in Heſiod [o]. As the Egyptians taught the Greeks agriculture [p], it is natural to think they would teach them the form of their plough, which is uſed even to this day in ſome diſtricts of the Higher Egypt [q]. The Romans, for many ages,

knew

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[l] See Heſiod. op. v. 443. The Greeks called Ἄροτρον αὐτόγυον.

[m] Voyag. de Frezier, p. 70.

[n] Extrait des hiſt. Chin.

[o] Op. v. 443. The Greeks called this Ἄροτρον πηκτὸν.

[p] See part 2. book 2. ſect. 2. c. 1.

[q] See the figure of it in Norden's voyage to Egypt, t. 1. plate 56.

If we believe Herodotus, l. 2. n. 14. Ælian. hiſt. animal. l. 10. c. 16. Plin. l. 18. ſect. 47. Plut. t. 2. p. 670. the Egyptians anciently did not plough their grounds. Theſe authors tell us, that as ſoon as the inundation of the Nile was retired, every one ſowed his field while it was ſoft and wet, and then turned a herd of ſwine into it, who preſſed the ſeed into the earth with their feet.

This

knew no other kind[r]. Such alſo are thoſe uſed in the ſouth of France, and in general in all hot countries[ſ]. I ſhall only obſerve, that in the ages of which I am ſpeaking, and even long after, they uſed no iron or other metal in their ploughs, as appears from the deſcription Heſiod gives us of thoſe of the Greeks[t]. Strabo ſpeaks of ſome nations who made uſe of ploughs entirely of wood[u]. They do ſo in Mingrelia[x] and ſeveral other countries at this day.

The form of their ploughs confirms an obſervation which I have already made, and which muſt not eſcape us, that tillage was invented by thoſe nations which inhabited a light and looſe ſoil. Theſe ſoils, having no great depth or conſiſtence, were eaſily turned; and the machines we have deſcribed, would be ſufficient for that purpoſe. On the contrary, ſtrong ſoils are naturally of a compact and ſolid texture; the parts of them will remain cold and without action, if they are not deeply ploughed and thoroughly ſeparated. It is only by this means they can be penetrated by the action of the ſun, and receive the impreſſions of the atmoſphere. Hence the different form of ploughs.

The ancients made uſe only of oxen in tillage. The Greeks who ſpeak of the ancient Bacchus as the inventor of agriculture[y], ſay he was the firſt who brought oxen out of India into Europe[z]. We may infer, however, from a paſſage in Deuteronomy, that in ancient times they ſometimes uſed aſſes

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This fact, as it is related by theſe authors, has always appeared to me very ſuſpicious. Hogs ſeem very unfit for this purpoſe, and more likely to devour the grain than to preſs it into the earth. Beſides, it would be impoſſible for theſe animals to extricate themſelves out of the mud, in which the ſowers ſunk to the knees. Maillet, deſcript. de l'Egypt, let. 9. p. 7.

I am perſuaded, that Pliny, Ælian, and Plutarch ſpeak only after Herodotus. For it is certain, from the teſtimony of Diodorus, l. 1. p. 43. and of Pliny himſelf, *loco cit.* and of modern travellers, that they did, and ſtill do, plough their lands in Egypt. Herodotus probably never ſaw the Egyptian practice, and had miſtaken the meaning of ſome more ancient writer. See Les jugemens ſur quelques ouvrages nouveaux, Avignon 1745, in 12°. t. 10. p. 241. *&c.*

See Virg. georg. l. 1. v. 169.

[ſ] See Lettr. édif. t. 12. p. 91.

[t] Op. 1. 443. *&c.*

[u] L. 11. p. 767.

[x] Chardin, t. 1. p. 127.

[y] Diod. l. 4. p. 249. l. 3. p. 232.

[z] Plut. t. 2. p. 262. B.

for the plough. Moſes forbids the Iſraelites to plough with an ox and an aſs together[a].

It was not enough to have ſown grain, means muſt have been uſed to make it take root and grow. It muſt have been covered with the ſoil, that it might not want that nouriſhment which was neceſſary to make it grow and ripen. This was the intention of the harrow; a very uſeful, and very ancient inſtrument, ſince we find it mentioned in the book of Job[b]. The Chineſe have even preſerved the name of the perſon they believed to be the inventor of the harrow. They beſtow very high commendations in their books on this invention, which was for a long time unknown to the Greeks, as I ſhall remark in the article of theſe people.

I muſt not conclude the ſubject I am now upon, without taking notice of the great pains which all civilized nations have been at to fertilize their grounds, and make them produce more than they would have done naturally.

In the firſt ages, after men began to cultivate the earth, they muſt have found it exceedingly fertile. Iſaac having ſown reaped an hundred-fold[c]. But this fertility could neither be general, nor of long duration. The ſoil exhauſts itſelf by bearing. Men were ſoon obliged therefore to contrive methods for renewing it, and reſtoring thoſe ſalts which are neceſſary to the production of grain. The ancients had ſeveral ways of fertilizing their lands. They employed dung, marl, ſalts, the aſhes of certain plants, *&c.*

It is impoſſible to fix the preciſe time when men began to manure their lands deſigned for tillage. We diſcern only through the ſhades in which all ancient traditions are involved, that this practice muſt have been very ancient in ſome countries. Italy aſcribed this invention to Saturn[d]. This means no more, but that this art was placed by the traditions of that people in the moſt remote antiquity.

It was with the ſame view that the Egyptians were at ſo much pains in watering their fields. This people inhabited a climate naturally barren and ungrateful [e]; but by dint of care and labour they rendered it the moſt fertile country in the ancient world. We know it had this character in the days of Abraham. This patriarch went thither to ſecure himſelf from that famine which deſolated all the neighbouring countries [f]. If we may even believe profane hiſtorians, the Egyptians had then executed very ſtupendous works, for rendering the river Nile of as great uſe as poſſible. Oſiris, ſay they, incloſed that river on both ſides with ſtrong dykes, erected ſluices in proper places for letting out the water upon the fields as they had need of it [g]. They place the digging of the lake Mœris, for theſe purpoſes, nearly about the ſame time [h]. There may be room for ſome doubts, perhaps, about the grandeur and magnificence of theſe works; but there can be none that the Egyptians in very ancient times had done great things for the improvement of their grounds. This is clearly enough intimated by Moſes, when ſpeaking to the Iſraelites of the promiſed land, he ſays, "The "land whither thou goeſt in to poſſeſs it, is not as the land "of Egypt, from whence ye came out, where thou ſowedſt "thy ſeed, and wateredſt it with thy foot as a garden of "herbs [i]."

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[a] Deut. c. 22. v. 10.

[b] C. 39. v. 10. See le P. Calmet.

[c] Gen. c. 26. v. 12.

[d] Macrob. Saturn. l. 1. c. 7. p. 218.

The manner of reaping is a matter of great importance. The firſt men muſt have committed great waſte, through want of ſkill, and of proper inſtruments. It would be long before they invented tools for cutting the ears of corn; at firſt they probably pulled them. There are ſome nations at this day who know no other method of reaping [k]. The tediouſneſs of this labour would put them upon contriving ways of ſhortening it. It would not be very difficult to invent ſome inſtrument fit for cutting ſeveral ears at once. The ſickle, or ſomething like it, is extremely ancient. All old traditions ſpeak of the ſickle of Saturn[l], who is ſaid to have taught the people of his time to cultivate the earth[m]. It is true, this ſuppoſes the art of working metals, which in theſe ages was known to very few nations[n]. The others would ſupply this want by different contrivances. We may judge of this by what modern authors tell us of ſeveral nations. The people of Paraguay cut down their corn with cow's ribs inſtead of ſickles[o].

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[e] Voyag. d'Egypte, par Granger, p. 12. & 25. 26.

[f] Gen. c. 12. v. 10.

[g] Diod. l. 1. p. 23.

[h] Ibid. p. 61. It is hard to determine the time in which Moeris reigned. All that we know, is, that Herodotus, l. 2 n. 101. 102. and Diod. l. 1. p. 62. make him more ancient than Seſoſtris; and the moſt probable opinion is, that Seſoſtris reigned about the year 1659 before Chriſt.

[i] Deut. c. 11. v. 10. & 15.

[k] Hiſt. gen. des voyag. t. 3. p. 117.; Voyag. de Damp. t. 4. p. 228.

It muſt have coſt mankind much thought and many trials, to contrive an eaſy method of ſeparating the grain from the ear. The moſt common practice of antiquity was to prepare a place in the open air, by making it very hard and ſmooth; on this they ſpread their ſheaves, and then turned in oxen or other animals, and drove them backwards and forwards upon it for a long time. It appears, that this was the method uſed in Moſes's time by the people of Aſia and Egypt[p]; it was alſo uſed by the Greeks[q], and ſeveral other nations[r]. Others made uſe of heavy planks, ſtuck full of ſharp pegs or pointed flints, which they dragged over the ſheaves[s]: this is practiſed by the Turks. Laſtly, ſome bruiſed the ears by means of heavy carriages, ſuch as carts, ſledges, *&c.* This method ſeems to have been invented and practiſed by the inhabitants of Paleſtine[t]. In Gaſcoigne and Italy they uſe carts and ſledges for this purpoſe at preſent. In China they perform this work with a heavy roller of unpoliſhed marble[u]. All theſe methods are ſtill in practice in moſt hot countries[x]. They make no uſe of the flail in the eaſt[y], where agriculture firſt began.

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[l] Plut. t. 2. p. 275. A.; Macrob. Sat. l. 1. p. 217.; Bannier, explicat. des fabl. t. 3. p. 429. 430.

[m] Diod. l. 5. p. 383.; Macrob. Sat. l. 1. p. 217.

[n] See *infra*, chap. 4.

[o] Lettr. édif. t. 11. p. 420.

[p] Deut. c. 25. v. 4.

[q] Iliad. l. 20. v. 495. *&c.*

[r] Ælian ſays, they rubbed the mouths of the oxen employed in this work with dung, to prevent their eating. *Hiſtor. animal. l.* 4. *c.* 25.

[s] See Scheuchzer, phyſ. ſacr. t. 7. p. 241. col. B. § 2.

[t] See Varron, de re ruſt. l. 1. c. 52.

[u] Hiſt. gen. des voyag. t. 5. p. 459.

[x] Ibid. p. 187.

[y] Calmet, t. 4. part 2. p. 339.

The firſt way of cleaning grain after it had been ſeparated from the ſtraw, muſt have been by toſſing up the grain and chaff together into the air ſeveral times; the wind carried away the chaff, while the grain fell to the ground by its own weight: they uſed for this purpoſe ſhovels or ſome ſuch inſtruments. It is certain, that the winnowing fan was of great antiquity [z]; but the fan of the ancients did not reſemble ours. It is conjectured that it was made like a kind of ſhovel [a]. Beſides, this manner of winnowing grain is ſtill practiſed in Italy and all hot countries [b].

ARTICLE II.

Of the art of making bread.

THE deſign and end of all the toils of huſbandry is to procure bread. However common this aliment is at preſent, the art of preparing it was very rude in its beginnings, ſlow and various in its progreſs, like all other human inventions. Several nations who had corn, did not know for ſome time the ſecret of converting it into meal, or the meal into bread. How many vaſt countries are there in both continents, where, though they have grain, the uſe of bread is ſtill quite unknown? It is even difficult to conceive how certain nations came to find out the extreme utility and various properties of corn. The difference between bread and that plant in its natural ſtate, is prodigious. Yet nothing but the hopes of obtaining bread could have made whole nations apply themſelves to huſbandry, which is by far the moſt laborious courſe of life, and requires the greateſt ſolicitude and attention. Accordingly there have [c] been, in ancient times, and ſtill are [d], many nations who never would ſubmit to cultivate the earth. The inconveniencies of a wandering life appeared to them preferable to the ſweets of a ſedentary one, which could only be procured by means of agriculture [e]. Thoſe nations then who ſubmitted to the fatigues neceſſary for raiſing corn, muſt have known beforehand that that plant would reward all their toil, and furniſh them with the moſt ſolid and agreeable food. This is, in my opinion, a freſh proof that ſome families, even after the diſperſion and the confuſion of tongues, had ſtill retained ſome idea of the moſt uſeful arts.

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[z] *Myſtica vannus Iacchi.* Virgil. georg. l. 1. v. 166.

[a] Odyſſ. l. 11. v. 125. See Madam Dacier's notes, t. 2. p. 479.

[b] Calmet, t. 4. part 2. p. 341.; Aſtruc, mem. pour l'hiſt. nat. de Languedoc, p. 354.

[c] Herod. l. 4. n. 97.; Caeſ. de bello Gall. l. 6. n. 20.; Strabo, l. 11. p. 753. 754. & 781. l. 16. p. 1084. & 1115. l. 17. p. 1184. & 1190.; Tacit. de mor. Germ. n. 46.

We ſhall here lay before our readers the conjectures we have found in ancient writers, about the ſteps by which the art of making bread was again diſcovered by thoſe families, who, in their wandering ſtate, had loſt all tincture of this and every other art. They began, ſay the ancients, with eating the grain as nature produced it, without any preparation [f]. According to Poſidonius, a very ancient and eminent philoſopher, this alone, if duly attended to, was ſufficient to ſuggeſt the idea of converting corn into bread. They muſt have obſerved, ſays he, that the grains were firſt bruiſed by the teeth, then diluted by the ſaliva, and being wrought and kneaded by the tongue, went into the ſtomach, where they were properly heated to be converted into nouriſhment. On this model they formed the plan of making corn into bread fit for nouriſhment. They imitated the action of the teeth, by bruiſing the grain between two ſtones; they then mixed the meal with water, and by ſtirring and kneading that mixture, they formed it into a paſte, which they baked by putting it under hot aſhes, or ſome other way, till by degrees they invented ovens [g].

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[d] The Tartars, Arabians, and ſavages. See Merc. de France, Juin. 1755, vol. 1. p. 141.

[e] See Tacit. de mor. Germ. n. 46.

[f] Hippocrat. de priſca medic. c. 2. t. 1. p. 154.; Theophraſt. *apud* ſchol. Hom. *ad* Iliad. l. 1. v. 449.; Suid. *voce* Οὐλοθυτ. t. 2. p. 738.; Coel. Rhodig. lect. antiq. l. 18. c. 38. p. 1037.; Several facts prove, that green grain can ſuſtain life. See St Luke, c. 6. v. 1.; Lettr. édif. t. 17. p. 302.; Acad. des inſcript. t. 16. H. p. 258.

Whatever becomes of this conjecture, we ſhall now deſcribe the different operations made in the moſt ancient times upon grain, and the uſes they put it to, according to the lights furniſhed us by antiquity. The practice of ſeveral nations in both continents at this time will aſſiſt us in judging of thoſe of former ages.

I have ſaid already, that there was a time when plants, herbs, and roots were the chief food of almoſt all the inhabitants of the earth. It is probable they broiled or boiled theſe plants and roots, as ſeveral nations do at preſent [h]. I am perſuaded, that many nations originally knew no other way of dreſſing grain. They would begin by broiling the ears as ſoon as pulled while green and full of ſap, on a clear and hot fire; then rubbing them between their hands, they ſeparated the grain from the chaff, and eat it without any other preparation. This conjecture appears to me the more probable, that in Herodotus's time this was the practice of ſome nations in India [i], and that, even in our own days, this is the practice of ſeveral ſavage nations in preparing their grain [k].

But as the nations of whom I am ſpeaking became civilized, this practice would be aboliſhed. For as this kind of food would laſt only about a month, they loſt the principal advantage of grain, which is its providing men with a certain and plentiful ſupport from one harveſt to another. Theſe people therefore would naturally ſtudy how to make uſe of grain after it was ripe and dried. But it is probable they would make a great many trials before they hit upon any commodious method of converting this plant into an agreeable and proper aliment.

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[g] *Apud* Senec. ep. 91. p. 409.

[h] See l'hiſt. nat. de l'Iſlande, t. 1. p. 53.

[i] L. 3. n. 100. See alſo Levit. c. 2. v. 14.; Caſaub. *in* Athen. l. 14. c. 16. p. 923.

[k] Hiſt. de la Virginie, p. 246.; Voyag. de Frezier, p. 62.; Hiſt. gen. des voyages, t. 3. p. 167. It is the cuſtom of children in ſeveral countries at this day, to pluck ears of corn when near ripe, and after putting them a little in a clear fire, rub them between their hands, to detach the grains. The taſte of theſe green half-roaſted grains is not diſagreeable.

It is impoſſible for men to live upon dry grain in the huſk; they muſt therefore have ſtudied ſeveral methods of preparing it. We find no practice ſo univerſal in ancient times as that of roaſting grain. Almoſt all known nations have practiſed it [l], and the ſavages practiſe it at this day [m]. What could be the reaſon of this? The moſt probable ſeems to me to be this. We have been told, that originally men made uſe of grain in its natural ſtate. Of all the frumentaceous plants, if we believe the ancients, barley was the firſt that men fed upon [n]. The grains of barley are involved in a certain huſk or coat, of which it cannot be ſtripped but by the millſtone. The far greateſt part of theſe firſt nations knew nothing of mills. For want of this machine they made uſe of fire to detach the barley from its huſk, which made it almoſt impoſſible to be eaten. They found this further advantage in this practice, that the fire communicated a kind of flavour to the barley. For this kind of grain, when half roaſted, has not a diſagreeable taſte. In Ethiopia travellers commonly carry no other proviſions with them but parched barley [o]. When afterwards theſe nations came to grind their grain, this roaſting of it was of great advantage. For many ages men knew no other way of grinding their grain, than by pounding it in mortars [p]. The action of the fire upon the grain made it be more eaſily bruiſed and ſtripped of its coat [q].

We may reckon alſo amongſt the firſt methods of preparing grain, that of ſteeping and boiling it in water, as they do their rice in the eaſt. We know that the conſtant food of the Greeks [r] and Romans [ſ] in their firſt ages, was grain prepared in this manner, the water ſwelling and ſoftening the grain ſo much as to make it eaſily eatable. This is ſtill the method of many nations in preparing their grain [t]. Perhaps, too, the better to ſtrip it of its huſks, they uſed to boil it a little before they roaſted it. We meet with the traces of theſe ancient practices amongſt the Kalmucks on the banks of the Irtis. Barley is their ordinary food. They ſteep it for ſome time in water, then preſs it to ſtrip it of its coat, and ſet it upon the fire in kettles without water till it is well roaſted. They eat it in handfuls for their daily bread [u].

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[l] See Appollon. Rhod. l. 1. v. 1072.; Virg. georg. l. 1. v. 267.; Ovid. faſt. l. 6. v. 693. l. 6. v. 313.; Plin. l. 18. ſect. 2.; Feſtus *in voce* Ador, p. 8.; Servius *ad* Æneid. l. 1. v. 179.; Le P. Calmet, t. 2. p. 868. t. 4. part 2. p. 337.

[m] Moeurs des ſauvages, t. 2. p. 86.; Voyage de Frezier, p. 62.; Voyages de Dampier, t. 4. p. 228.

[n] Dionyſ. Halicarn. l. 2. p. 95.; Plin. l. 18. ſect. 14. p. 108.; Porphyr. *de* abſtin. l. 2. p. 128.; Pauſ. l. 1. c. 38.

[o] Relat. de la haute Ethiop. p. 5.

[p] See *infra*, p. 99.

[q] See Acad. des ſcien. ann. 1708, mem. p. 67.

Mankind were not long in diſcovering that grain wanted ſtill further preparation. They ſoon obſerved that grain contained within its huſk or coat, a ſubſtance which required to be diſintangled. This ſuggeſted the idea of bruiſing or grinding. The firſt inſtruments uſed for this purpoſe, were only peſtles and mortars of wood or ſtone. Nature pointed out theſe. The Greeks [x], Romans [y], and almoſt all nations [z], were a long time before they diſcovered any other method of making corn into meal. Many nations even in our days have no other machines for this purpoſe [a].

It is not eaſy to determine, with certainty, in what manner they made uſe of this kind of meal. Diodorus ſays, that the firſt inhabitants of Great Britain, after preſſing the grains out of the ears, pounded them in a mortar, and ſo eat them; and theſe grains, thus pounded and bruiſed, were their principal food [b] We know that the Indians of Peru prepare their barley, by firſt toaſting it, then reducing it to meal, and ſo eat it in ſpoons, without any further dreſſing [c]. We do not know whether the nations of antiquity uſed their pounded corn in this manner.

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[r] Suidas *in voce* Διαόχνη, t. 1. p. 515.

[ſ] Traité de la police, l. 5. t. 2. p. 791.; Acad. des ſcienc. ann. 1708, mem, p. 86.

[t] Voyag. de Frezier, p. 62.

[u] Rec. des voyag. au Nord, t. 8. p. 191.

[x] Heſiod. op. v. 423.

[y] Plin. l. 18. ſect. 3. & 23.; Serv. ad Æneid. l. 9. v. 4.

[z] Plin. *loco cit.* ſect. 23.

[a] Hiſt. gen. des voyag. t. 3. p. 81. & 431.

[b] Lib. 5. p. 347.

[c] Voyage au Pérou par D. Ant. d'Ulloa, t. 1. p. 342.

It is certain, that before men could make a proper uſe of grain, they muſt have found out the art of ſeparating the meal from the bran. Yet I am perſuaded that at firſt they eat both together, as ſome unpoliſhed nations do ſtill [d]. By degrees, however, they would endeavour to ſeparate them, perhaps by paſſing their pounded corn through coarſe ſieves made of twigs, baſkets of oſiers, or the like, or perhaps even by winnowing it. All theſe methods are ſtill uſed by the ſavages [e]. By degrees they improved theſe inſtruments. The Egyptians made their ſieves or ſearces of the filaments of the plant called *Papyrus*, or of the ſlendereſt ruſhes [f]. The Greeks [g] uſed this laſt plant for the ſame purpoſe. The ancient inhabitants of Spain made theirs of thread [h]. The Gauls were the firſt who had the art to make them of horſes hair [i].

The firſt uſe they probably made of meal, was to mix it with water, and eat that mixture without any further preparation, as the people in the highlands of Scotland, and ſeveral others, do at this day [k]. By and by they thought of boiling this mixture. The moſt common diſh the ancients made of meal, was a kind of haſty-pudding, boiled in earthen veſſels, not unlike the *farro* of the Italians. This meal diluted with pure water, was the ſtanding food of the ancients, which ſometimes they dreſſed alone, and ſometimes with meat when they could procure any *. They knew nothing of dreſſing them ſeparately, and eating them together, as we uſe bread [l]. This way of uſing meal ſubſiſted very long. It was in uſe among the Greeks, Romans, Perſians, and Carthaginians [m]. The ancient inhabitants of the Canary iſlands were no leſs ignorant of the art of making bread. They eat their meal baked with meat and butter [n]. The ſavages make what we call their *Sagamite*, of Indian corn roaſted in the aſhes, pounded in a wooden mortar, and baked in an earthen veſſel with all kinds of meat [o].

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[d] Hiſt. gen. des voyag t. 5. p. 137.; See alſo l'hiſt. des Incas, t. 2. p. 196.

[e] Moeurs des ſauvages, t. 2. p. 86.

[f] Plin. l. 18. ſect. 28.

[g] Pollux, l. 6. ſegm. 74.

[h] Plin. *loco cit.*

[i] Plin. ibid.

[k] Voyage de Frezier, p. 62.; Voyag. d'Egypte par Granger, p. 11.; Mercure de France, Juillet 1718. p. 87. 88.

* This is what they called *Pulmentum* or *Pulmentarium.*

[l] Moeurs des ſauvages, t. 2. p. 83. 84.

[m] Ibid. p. 84.

Pliny ſeems to contradict this in theſe words, *videturque tam puls ignota Graeciae, quam Italiae Polenta.* But the meaning, as Licetus well explains it, l. 18. ſect. 19. is, that the Latins did not uſe the word *polenta,* nor the Greeks the word *puls. Reponſ. ad quaeſita,* p. 57.

Some of the ancients might have diſcovered pretty early the art of converting corn into meal; but that of converting meal into bread, in all appearance was not very ſoon found out. Yet till this diſcovery was made, it may be ſaid, that mankind enjoyed but very imperfectly the advantages of grain, whoſe true and beſt uſe is to be converted into bread. It is hard to imagine by what ſteps they arrived at this diſcovery. They muſt have invented dough, that is, to mix a certain proportion of meal and water together, ſtir them ſtrongly, and ſeveral times; they muſt have invented the art of baking, &c. We may believe it muſt have coſt them many repeated trials before they diſcovered the art of converting meal into bread. But in whatever manner this diſcovery was made, it was exceeding ancient. The ſcriptures acquaint us, that Abraham ſerved up bread to the three angels which appeared to him in the valley of Mamre [p].

Their manner of making bread at that time was very ſimple. The ingredients were only meal and water, and perhaps a little ſalt. Their bread was not thick and raiſed as ours is at preſent; it was a kind of ſmall flat cake, which they eaſily broke with their hands, and eat without a knife. Hence theſe expreſſions ſo frequently uſed in ſcripture, to *break* bread, the *breaking* of bread, &c [q]. It appears further, that they did not knead their dough, and that they baked it immediately before they uſed it [r], a practice which ſubſiſts ſtill in ſeveral countries [ſ].

They uſed but few precautions anciently in baking their bread. The hearth-ſtone commonly then ſerved for this purpoſe.

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[n] Aſia di Barros, deca 1. l. 1. c. 12. fol. 24. *verſo*.

[o] Moeurs des ſauvages, t. 2. p. 86. 87.

[p] Gen. c. 18. v. 6.

[q] See Waſſerus de antiq. menſur. l. 2. c. 5.

[r] Gen. *ſupra*, & c. 19. v. 3.

[ſ] Chardin, t. 1. p. 128. t. 4. p. 177.; Mem. de Trev. Septem. 1717, p. 1496. &c.

They laid a thin piece of dough upon this, covered it up with hot aſhes, and let it lie till it was ſufficiently baked [t]. It was in this manner Sarah prepared the bread which Abraham ſet before the angels [u]. It is thus ſeveral nations in America prepare their bread at preſent. They wrap their paſte in leaves, cover it firſt with hot aſhes, and above theſe with live-coal [x]. Sometimes they may uſe hollow ſtones, ſufficiently heated, for this purpoſe. The practice of ſeveral modern nations leads us to think they did this. In ſome parts of Norway at this day they bake their bread between two hollow flints [y]. The bread of the Arabians is a kind of cake, which they bake between two ſtones made hollow for this very purpoſe, and heated in the fire [z]. The bread uſed by the ſavages of America, differs but little from that of the Arabians. It is a kind of thin cake, which they bake either between two ſtones very much heated [a], or by laying their paſte upon one hot ſtone, and covering it up with flints very warm [b]. The bread of the Tartars of Circaſſia is made of the meal of millet, kneaded with water into a ſoft paſte, which they bake about half enough in earthen moulds, and eat very hot [c]. The bread of the greateſt part of the nations of Africa is only meal kneaded with a little water, which they divide into ſmall pieces, and bake on a ſtone [d] or in an earthen pot upon the fire [e]. They might perhaps anciently make uſe of a kind of gridirons, or frying-pans, in which they put their paſte, and baked it over the fire [f].

The invention of ovens however is very ancient. They are ſpoke of in the time of Abraham [g]. Some writers give the honour of this invention to one Annus an Egyptian [h], a perſon entirely unknown in hiſtory. Theſe firſt ovens, I imagine, were very different from ours. They were (as far as we can judge of them) a kind of baking-pans of clay or fattiſh earth, which they eaſily carried with them from place to place. We may imagine alſo that theſe firſt ovens were very much like thoſe of the Turks, which are of clay, and reſemble an inverted tub or bell. They heat them by putting fire in the inſide, and then lay the paſte formed into cakes on the top: as theſe cakes are baked, they remove them, and put others in their room [i]. All theſe different ways of baking bread which we have mentioned, ſtill ſubſiſt in the eaſt [k].

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[t] Ovid. faſt. l. 6. v. 315.
[u] Gen. c. 18. v. 6.
[x] Hiſt. de la Virginie, p. 244.
[y] Journal des ſcavans, Nov. 1668, p. 87.
[z] Calmet, t. 6. p. 326.
[a] Leſcarbot, hiſt. de la Nouv. France, p. 745.
[b] Ibid. p. 337.
[c] Rec. des voyag. au Nord, t. 10. p. 462.
[d] Hiſt. gen. des voyag. t. 3. p. 431. t. 4. p. 289. 352.
[e] Ibid. t. 4. p. 289.
[f] See Levit. c. 7. v. 9.
[g] Gen. c. 15. v. 17.
[h] Suidas *in voce* Αρτος, t. 1. p. 340.

We have no reaſon to imagine, that as ſoon as men diſcovered the art of making bread, they found out the ſecret of raiſing the paſte. If there be any one diſcovery owing to chance, it is that of leaven. The idea of ſuch a thing could not come into the mind of man naturally. The world was indebted to the œconomy of ſome perſon or other for this happy diſcovery, who, in order to ſave a little old dough, mixed it with the new, without foreſeeing the utility of this mixture. They would no doubt be very much ſurpriſed to find that this piece of old dough, ſo ſour and diſtaſteful of itſelf, rendered the new bread ſo much lighter, more ſavoury, and eaſier of digeſtion. We do not know the preciſe time when leaven came to be uſed. It does not appear that the bread which Abraham preſented to the angels was leavened. Sarah baked it as ſoon as ſhe had mixed the meal and the water [l]. It is not at preſent the cuſtom in the greateſt part of Aſia to ferment the paſte [m]. The uſe of leaven however was very ancient, and muſt have been known before Moſes. For when that legiſlator preſcribes to the Iſraelites the manner of eating the paſchal lamb, he forbids them to uſe leavened bread [n]; he obſerves further, that when the Iſraelites went out of Egypt, they eat unleavened bread, baked in the aſhes, becauſe, ſays he, they were thruſt out of Egypt, and had no time allowed them to leaven their bread [o].

It muſt have taken much time and much labour to reduce corn into meal in the mortar: this meal muſt alſo have been

[i] Belon. obſervat. l. 2. c. 115. p. 377.

[k] See Thevenot, t. 2. c. 32. p. 544.; Chardin, t. 1. p. 128. t. 2. p. 93. t. 4. p. 177. 184.

[l] Gen. c. 18. v. 6.

[m] Gemelli, t. 1. p. 418.; Chardin, t. 4. p. 177. & 185.

[n] Exod. c. 12. v. 15. [o] Ibid. v. 39.

very coarſe. I am perſuaded, that the want of proper machines is the reaſon why ſeveral nations who have corn, do not make it into bread. But by little and little the arts improved. They muſt ſoon have diſcovered the utility of certain ſtones for cruſhing and grinding the grain. The rudeſt ſavages are not ignorant of this. They convert their corn into meal by means of two ſtones, the one fixed, the other turned about upon it by ſtrength of arm, as our painters grind and mix their colours [p]. It is probable this was their method in the firſt ages. This was ſtill very incommodious and toilſome. They would therefore endeavour to find out ſome more eaſy and expeditious way of grinding their grain. At laſt they invented the millſtone and the mill.

It cannot be expected we ſhall ever be able to diſcover the exact time when mills were invented. There are ſo few circumſtances recorded in hiſtory concerning this, and ſeveral other very ancient inventions, that it is impoſſible to fix the preciſe epocha of their diſcovery. I will not take upon me to affirm that corn-mills were known in Abraham's time, though I am inclined to think they were, from what Moſes makes Abraham ſay to Sarah, "to knead three meaſures of fine "meal [q];" it is hard to conceive how meal can be made very fine without the uſe of the mill. But not to inſiſt on this doubtful paſſage, Job [r], who lived in the ages * we are now conſidering, ſpeaks of the millſtone. It is equally certain that the uſe of mills was very ancient among the Egyptians. Moſes makes this evident enough [ſ]. He ſpeaks alſo very plainly of theſe machines, when he forbids the Iſraelites to take the upper or nether millſtone in pledge [t].

Further, we are quite ignorant of the conſtruction of theſe ancient mills. The millſtones muſt have been very ſmall, ſince they were eaſily turned by hand. This was one of the hardeſt and loweſt drudgeries of their ſervants and ſlaves. Moſes expreſſes this clearly in ſpeaking of the laſt plague of Egypt. "All the firſt-born in the land of Egypt ſhall die, from the "firſt-born of Pharaoh that ſitteth upon the throne, even to "the firſt-born of the maid-ſervant that is behind the mill [u]."

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[p] Voyag. de Frezier, p. 62.; Lettr. édif. t. 23. p. 289.; Hiſt. gen. des voyag. t. 8. p. 228. t. 3. p. 117. t. 4. p. 289.

[q] Gen. c. 18. v. 6.

[r] C. 41. v. 15. according to the Hebrew.

* See our diſſertation at the end of the laſt volume.

[ſ] Exod. c. 11. v. .

[t] Deut. c. 24. v. 6.

We ſhall ſee in the following books, that neither the Greeks nor any other ancient nation had any other than hand-mills [x].

Notwithſtanding the great antiquity and utility of agriculture which procures us the moſt ſolid and agreeable aliments, the knowledge of it at firſt was very limited, and for a long time confined to a few countries. I am of opinion, that, in the ages we are now ſpeaking of, huſbandry was only known and practiſed in Chaldea, Paleſtine, Egypt, and a few provinces of China. The greateſt part of Europe was for a long time unacquainted with this uſeful art. I ſhall take care, in the ſecond part of this work, to point out the time when huſbandry was eſtabliſhed in Greece. Let us proceed to inquire into the diſcovery and progreſs of the other parts of agriculture.

ARTICLE III.

Of Drinks.

WE may reckon the cultivation of the vine, and the art of making wine, among the firſt branches of agriculture which were known to men. All hiſtorians, ſacred and profane, agree in placing this diſcovery in the moſt diſtant ages. Noah cultivated the vine, and drank wine [y] According to the Egyptian traditions, Oſiris was the firſt who gave attention to the vine, and its fruit. Having diſcovered the ſecrets of planting and cultivating vines, and of extracting wine, he communicated them to mankind [z]. The inhabitants of Africa ſay the ſame of the elder Bacchus [a]. We ſee too, that, in the remoteſt antiquity, their public worſhip chiefly conſiſted in offerings of bread and wine. Such was the thank-offering of Melchizedek king of Salem, and prieſt of the Moſt High, for the victory gained by Abraham [b].

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[u] Exod. c. 11. v. 4. 5.

[x] See Calmet, t. 4. part. 2. p. 252.

[y] Gen. c. 9. v. 20. There is reaſon to believe wine was not known before the deluge, becauſe Noah was ſurpriſed at the effects of that liquor.

The properties of the vine, and the art of making wine, were naturally very obvious. The ancients knew [c], and we know at this day [d], ſeveral countries which naturally produce vines, whoſe fruit is very little inferior to thoſe that are cultivated. Their grapes may not only be eaten, but they make pretty good wine [e]. It is not therefore difficult to conceive how the firſt men, by the help of a little reflection, might arrive at this branch of knowledge.

The conſequence of this diſcovery would be their collecting the vines together, which before were mixed with other underwood, planting them in a proper ſoil, and on a regular plan. It was even eaſy to diſcover the art of cultivating vines. They require only to be dreſſed and pruned. There is no neceſſity of uniting different kinds of them by the graft and ſcutcheon, as is done with other fruit-trees.

We can only gueſs in what manner they made their wine in theſe remote ages. At firſt it is probable they ſqueezed the grapes with their hands. By degrees they would find out more expeditious methods. If we may believe profane hiſtorians, the wine-preſs is of very great antiquity. They gave the honour of this invention to the elder Bacchus [f]. It is certain that the uſe of it was known in the age of Job [g]; but we know not in what manner theſe machines were anciently made.

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[z] Diod. l. 1. p. 19. The art of making wine muſt have been very ancient in Egypt. See Gen. c. 40. v. 9. &c.

[a] L. 3. p. 239.

[b] Gen. c. 14. v. 18. See what we have ſaid above of the reſemblance between mens ordinary food and their ſacrifices, p. 78.

[c] Diod. l. 3 p. 231. & 239; l. 4. p. 327.; Strabo, l. 15. p. 1017. C.

[d] Rec. des voyag. au Nord, t. 5. p. 40. t. 9. p. 143. 144.; Mercure de France, Septembre 1717, p. 131. & 140.; Hiſt. de la Virginie, p. 3. & 188.; Leſcarbot, hiſt. de la Nouv. France, p. 562. 563.

[e] Authors cited above.

[f] Diod. l. 3. p. 232.

[g] C. 24. v. 11.

The invention of veſſels proper for holding and keeping liquors commodiouſly, muſt have ſoon followed the diſcovery of wine. Men would at firſt make uſe of ſuch as nature preſents them with in all climates. There are ſeveral kinds of fruit, as the gourd, the calibaſh, the citrul, &c. which being dried and hollowed may ſerve very well for keeping and carrying liquors. The Egyptians [h] made much uſe of theſe, and they are the common veſſels of the people of America at preſent [i]. Bamboos, a kind of reeds, are equally proper for this purpoſe. In ſeveral countries they ſupply the place of pails and caſks [k]. The ancients imagined that the horns of animals were the firſt veſſels uſed for keeping and drinking liquors [l]. The uſe of them was even continued very long by ſeveral nations [m]. The ſacred oil of the tabernacle was kept in a horn [n]. Galen remarks, that at Rome they meaſured oil, wine, honey, vinegar, in veſſels of horn [o]; and Horace ſpeaks of them very plainly [p]. Cæſar ſays the inhabitants of the Hercinian foreſt uſed large cups made of the horns of the *urus* [q]. Pliny aſcribes this practice in general to all the nations of the north [r]. Xenophon makes the ſame obſervation of many nations of Aſia and Europe [ſ]. The ancient poets, Æſchylus, Sophocles, and Pindar, always repreſent the firſt heroes drinking out of horns. Theſe kinds of cups are ſtill much uſed in Georgia [t]. Bartholin aſſures us, that in Denmark they formerly drank out of nothing but the horns of oxen [u]. In a great part of Africa, theſe are the only veſſels uſed for keeping liquor [x]. Men were not long before they invented earthen ware, both for keeping and drinking their liquors [y]. The Phœnicians, Greeks, and ſeveral other nations, made much uſe of them for keeping their wines [z]. Afterwards they found out a way of dreſſing the ſkins of animals, ſo as to make them fit for keeping liquors. The uſe of bottles is extremely ancient. When Abraham ſent away Hagar, it is ſaid he put a bottle of water upon her ſhoulder [a]. It appears from the book of Job, that bottles were the veſſels moſt commonly uſed for keeping wine and other liquors in theſe remote ages [b].

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[h] Strabo, l. 17. p. 1151.

[i] Hiſt. de la Virginie, p. 243.; Voyag. de J. de Lery, p. 82. & 278.; Acoſta, hiſt. nat. des Indes, fol. 167. v.; Voyage de V. le Blanc, part 2. p. 115. & 184.; Voyage de Dampier, t. 4. p. 189..243.; Hiſt. des Incas, t. 2. p. 200.

[k] Rec. des voyag. qui ont ſervi à l'établiſſement des Holland. t. 1. p. 254.; Hiſt. gén. des voyag. t. 8. p. 93.; Acoſta, hiſt. nat. des Indes, fol. 185. *recto.*

[l] Athen. l. 11. p. 476.; Nonnus Dionyſ. l. 12. p. 338. v. 21. p. 348. v. 13.

[m] 1 Sam. c. 16. v. 1.; Athen. l. 11. p. 468. & 476.

[n] 1 Kings, c. 1. v. 39.

[o] De compoſit. medicament. per genera, l. 1. c. 13. t. 12. p. 657. edit. Charterii.

[p] Serm. l. 2. ſatir. 2. v. 61. & 62.

[q] De bello Gall. l. 6. c. 26. It is the wild ox.

[r] L. 11. ſect. 45. p. 614. [ſ] Anabas, l. 6. & 7. [t] Chardin, t. 2. p. 187.

[u] Journal des ſcav. Nov. 1668. p. 89.

[x] Biblioth. raiſon. t. 1. p. 57.; Rec. des voyag. qui ont ſervi à l'établiſſement de la compagnie des Indes Holland. t. 1. p. 243. 244

We may depend upon it, that, next to wine, beer was the moſt ancient and univerſal liquor. Beer was the moſt common drink of the greateſt part of Egypt [c]. It was very early introduced into Greece [d], and ſome parts of Italy [e]. The ancient inhabitants of Spain, Gaul, and Germany, knew it from time immemorial [f]. In a word, we find this liquor even among the firſt inhabitants of Peru [g]. The invention of beer is exceeding ancient, and aſcribed to Oſiris. Tradition bears, that this prince, for the ſake of thoſe people whoſe countries would produce no wine, invented a liquor made of barley and water, which was not inferior to wine either in ſtrength or flavour [h]. This is an exact deſcription of beer or ale. They pay the ſame compliment to the ancient Bacchus [i].

If the diſcovery of wine ſeems to me ſimple and natural, that of beer ſurpriſes me beyond meaſure. I am ſtill at a loſs to conceive, how the idea and compoſition of this liquor occurred to the minds of theſe firſt men. We need only reflect a moment on the tedious proceſs neceſſary to the making of beer, to be convinced of the difficulty of the invention. Firſt, the whole proceſs of making the barley into malt, then the drying and grinding the malt in a particular manner, next the incorporating this with the water; which requires great kettles and furnaces for brewing this mixture of malt and water ſtrongly together; laſt of all, a certain quantity of yeſt muſt be put to it, to make the liquor ferment. This is a part of the operations neceſſary to making beer, and theſe operations require many machines. I ſuppoſe indeed, that the compoſition of this liquor was not originally ſo complicated as it is at preſent; there are however a great many operations eſſentially neceſſary to the making of it, and which they could not then diſpenſe with, eſpecially as all hiſtorians declare that it differed little or nothing from wine in ſtrength and flavour [k]. In whatever manner they then prepared their beer, it could not be ſo wholeſome as ours, becauſe it had no hops. This plant which we put into our beer for correcting the faults complained of in the beer of the ancients, is greatly commended by phyſicians for its virtues.

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[y] Athen. l. 11. p. 483. & 500.; Porphyr. de abſt. l. 2. p. 151.

[z] Iliad. l. 9. v. 465.; Herod. l. 3. n. 6.

[a] Gen. c. 21. v. 14.

[b] C. 32. v. 19. according to the Hebrew.

[c] Herod. l. 2. n. 77.; Diod. l. 1. p. 40. & 41.; Strabo, l. 17. p. 1179.; Athen. l. 1. p. 34. B. l. 10. p. 418. E.

[d] See part 2. ſect. 2. c. 1. art. 2.

[e] Strabo, l. 4. p. 310.

[f] Diod. l. 5. p. 350.; Plin. l. 14. ſect. 19. p. 729.; Tacit. de morib. German. n. 33.; Athen. l. 1. p. 16. C.

[g] Hiſt. des Incas, t. 2. p. 196.

The beer of this people muſt have been different from ours, for they had neither barley nor wheat.

[h] Diod. l. 1. p. 21.

[i] Id. l. 3. p. 242.

I cannot on this occaſion but make ſome reflections on the great thought and pains which mankind have taken in all ages, and in all countries, to find out ſome liquor more agreeable than water, more proper to ſtrengthen the body, to cheer the ſpirits, and even to throw the mind as it were out of itſelf. The wildeſt ſavages have endeavoured to find out ſtrong intoxicating liquors. When Virgil [l] deſcribes a nation in the north, who regaled themſelves with a liquor made from the fruit of the ſervice-tree, he paints them as a people gay and frolickſome by means of that unpleaſant drink. An enumeration of the ſeveral kinds of liquors which have been uſed in every age and climate, would be tedious. I ſhall only mention ſuch as have appeared to me moſt ſingular in their compoſition, and moſt worthy of attention.

Though the arts of making wine and beer were diſcovered very early, yet in the firſt ages there were but few nations who were acquainted with them; a great many were long ſtrangers to them, either through want of a proper ſoil for the growth of vines and grain, or more probably through want of ſkill in the cultivation of them. Theſe nations then found it neceſſary to contrive ſome other liquor to ſupply the place of wine and beer. For, in general, men muſt and will have ſome other drink beſides pure water. It is ſaid, that ſeveral nations were originally accuſtomed to drink the blood of the animals which they ſlew, quite hot [m]; a cuſtom which continued long [n], and which ſtill continues among ſome ſavages [o]. This ſhocking cuſtom, an effect of primitive barbarity, has yet ſome foundation in natural neceſſity. It was for want of ſome other artificial liquor, that they had recourſe to this, which, it is pretended, greatly cheriſhes and ſtrengthens nature *. For thoſe nations which ſtill retain the cuſtom of drinking the blood of animals, and even human blood [p], have no artificial liquors [q].

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[k] Diod. l. 1. p. 24.

[l] Georg. l. 3. v. 379.

As mankind became civilized, they conceived an averſion to drinking blood, and endeavoured to contrive ſome artificial liquor to ſubſtitute in its place. They never ſucceeded in this but when they hit upon ſuch a compoſition as fermented. For men really want that warmth which is occaſioned by fermentation. Let us examine the compoſition of ſome of thoſe liquors which have been uſed by the nations who had neither wine nor beer.

Mankind have always extracted their liquors from thoſe things which ſerved them for their food. Honey was very ſoon diſcovered; for though men had not the ſecret of collecting bees into hives, yet wild honey is ſo common, that they muſt always have had it in plenty. It was not long before they compoſed a liquor of it. I have already taken notice of the relation there always was between the ſubſtance of mens food, and of their ſacrifices[r]. Plato ſays, that anciently men offered nothing to the gods but fruits rubbed with honey[ſ] Plutarch ſpeaking of theſe ancient ſacrifices, gives this reaſon for them. Before men knew the vine, ſays he, they had no liquor but honey diluted with water[t]. This is what we call at preſent *hydromel.* Plutarch adds, that ſeveral barbarous nations in his time, who knew not wine, uſed this liquor, and that they corrected the flatneſs and inſipidity of it, by ſome bitter and vinous roots[u]. We learn from a number of other ancient authors, that the uſe of hydromel was very extenſive[x]. We ſee, even at preſent, the people of Abyſſinia, Lithuania, Poland, and Muſcovy, who have few vines, and a great deal of honey, make a liquor of this, by diluting it with water, boiling it a little, then fermenting it in the ſun. This liquor is very ſtrong, and not diſagreeable. The ancients mention a great many other liquors which I ſhall paſs over in ſilence.

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[m] Virg. georg. l. 3. v. 463.; Martini, hiſt. de la Chine, l. 1. p. 20.

[n] Strab. l. 16. p. 1121. l. 17. p. 1177.

[o] Hiſt. nat. de l'Iſlande, t. 2. p. 201. 202. 252. 266.; Aſia di Barros, deca. 1. l. 10. fol. 187.; Laët, deſcript. des Ind. occid. l. 6. c. 17. p. 219.; Voyag. à la baye d'Hudſon, t. 2. p. 21.; Buffon, hiſt. nat. t. 3. p. 485.

* Even at this day, thoſe people who hunt wild-goats and ſhamoys upon the Alps, always drink the blood of the beaſts as ſoon as they are killed. Having aſked them the reaſon of this practice, they told me nothing was ſo ſtrengthening as blood drunk hot.

[p] Hiſt. nat. de l'Iſlande, t. 2. p. 252. 266.; Buffon, hiſt. nat. t. 3. p. 485.

[q] Hiſt. nat. de l'iſlande, t. 2. p. 202.; Buffon, *loco citato*.

If from the nations of antiquity we deſcend to thoſe in modern times, we ſhall ſee, that even the moſt brutal ſavages have ſome artificial beverage. The Tartars extract from the milk of mares made ſour, a kind of liquor almoſt as ſtrong as brandy[y]. The Moxes, the moſt barbarous nation of America, have the ſecret of making a very ſtrong liquor of certain roots putrefied and infuſed in water[z]. Others roaſt maiz to a coal, then pound it very fine, and boil it in large kettles full of water. This black and diſtaſteful liquor gives them the higheſt delight[a]. Though the compoſition of all theſe liquors is pretty extraordinary, yet I am going to ſpeak of one more ſingular than all the reſt. The deſcription of it, I confeſs, is extremely diſguſting. But it is ſo much the ſtronger proof of the great efforts which men have made in all ages and countries, to procure ſome liquor leſs inſipid than water.

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[r] Supra, p. 78.

[ſ] De leg. l. 6. p. 875. G.

[t] Sympoſ. l. 4. p. 672.

[u] Id. ibid.

[x] Diod. l. 5. p. 350.; Plin. l. 14. ſect. 20. l. 23. ſect. 29.

[y] Marco Polo, l. 1. c. 57.

[z] Lettres édif. t. 10. p. 194. 195.

[a] Ibid. t. 25. p. 195.

There are few accounts of America but mention this liquor, the compoſition of which, is much the ſame amongſt all the ſavages of that part of the world.

The moſt common liquor among the ſavages of America, is what they call *chica*. This is their manner of making it. They infuſe 20 or 30 buſhels of maiz in a great trough full of water, till the water be well impregnated with the grain, and begins to ſour; then a great number of old women chew ſome the plant, and ſome the grains of maiz, which they ſpit out into calibaſhes; when they have got a ſufficient quantity of this odious mixture of maiz and ſaliva, they pour it into the trough, and it ſerves as yeſt, raiſing a ſmall fermentation in the whole maſs. When this fermentation is over, they draw off the liquor clear, which has the taſte of ſharp ſmall beer, and is extremely intoxicating. The ſavages value it highly, and are exceſſively fond of it [b]. Theſe examples on this ſubject, I ſuppoſe, will be thought ſufficient. Let us proceed to the other parts of agriculture known in theſe firſt ages.

ARTICLE IV.

Of the art of making Oil.

OIL is at leaſt as neceſſary to man, as wine, and other liquors of that kind. I do not know but in ſome reſpects it is more indiſpenſably neceſſary. There are few arts which do not require the uſe of oil. For this reaſon the Greeks made Minerva who diſcovered the olive, to preſide over all the arts. Accordingly we ſee that all nations have endeavoured to procure themſelves oil, and to extract it from every ſubſtance they thought capable of yielding it. The invention and uſe of oil is of the higheſt antiquity. It is ſaid Jacob poured oil upon the pillar he erected at Bethel, in memory of his dream [c].

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[b] Acoſta, hiſt. nat. des Indes, fol. 162.; Voyag. de Dampier, t. 4. p. 228.; Voyag. de Frezier, p. 62.; Voyag. de J. de Lery, p. 124.; Voyag. des Holland. t. 2. p. 38.

[c] Gen. c. 28. v. 18.

There are a good many plants and fruits from which oil may be made; but that which is extracted from the fruit of the olive-tree, is by far the moſt excellent. This diſcovery was not obvious. It was not eaſy to diſcover that olives would yield oil, but ſtill more difficult to find out the art of extracting it. The invention of machines proper for this operation, requires much reflection and many trials. To extract oil from olives, they muſt firſt be reduced to a paſte, by the help of the millſtone, this paſte muſt be put into large frails, and boiling water poured upon it; at laſt the whole muſt be preſſed, and the oil which ſwims on the top collected with ſpoons. The conſideration of all theſe operations might incline us to deny the firſt ages the knowledge of the oil of olives, and to doubt whether that which Jacob uſed was of this kind.

But, on the other hand, we find, that the olive was known and cultivated in the remoteſt times. The traditions of almoſt all ancient nations agree, that the olive was the firſt tree men learned to cultivate. The Egyptians believed they owed this diſcovery to the elder Mercury [d]. The Atlantides ſaid, that Minerva was the firſt who taught men to plant and cultivate olive-trees, and extract the oil of olives [e]. This fact is the more probable, as the management of the olive is extremely eaſy, this tree hardly requiring any care [f].

It is alſo certain, that olive-oil was known in the days of Job [g]; and by the manner in which Moſes ſpeaks of it, we may perceive plainly, that it was much uſed in his time [h]. There is no room therefore to doubt, that many nations, in theſe firſt ages, knew the art of extracting oil from olives. But it does not appear that they made uſe of the ſame machines in that operation which we have at preſent. The preſs, particularly, was not known then. They pounded the olives in mortars to extract their oil [i].

Further, if we will believe the ancient tradition of the Atlantides, the great efforts which men have made in all ages and countries, to procure ſome liquor leſs inſipid than water.

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[d] Diod. l. 1. p. 20. [e] Idem, l. 5. p. 389.

[f] Virg. georg. l. 2. v. 420.

[g] Gen. c. 24. v. 11. according to the Hebrew.

[h] Exod. c. 27. v. 20. c. 23. v. 11. [i] Exod. c. 27. v. 20.

The moſt common liquor among the ſavages of America, is what they call *chica*. This is their manner of making it. They infuſe 20 or 30 buſhels of maiz in a great trough full of water, till the water be well impregnated with the grain, and begins to ſour; then a great number of old women chew ſome the plant, and ſome the grains of maiz, which they ſpit out into calibaſhes; when they have got a ſufficient quantity of this odious mixture of maiz and ſaliva, they pour it into the trough, and it ſerves as yeſt, raiſing a ſmall fermentation in the whole maſs. When this fermentation is over, they draw off the liquor clear, which has the taſte of ſharp ſmall beer, and is extremely intoxicating. The ſavages value it highly, and are exceſſively fond of it [b]. Theſe examples on this ſubject, I ſuppoſe, will be thought ſufficient. Let us proceed to the other parts of agriculture known in theſe firſt ages.

ARTICLE IV.

Of the art of making Oil.

OIL is at leaſt as neceſſary to man, as wine, and other liquors of that kind. I do not know but in ſome reſpects it is more indiſpenſably neceſſary. There are few arts which do not require the uſe of oil. For this reaſon the Greeks made Minerva who diſcovered the olive, to preſide over all the arts. Accordingly we ſee that all nations have endeavoured to procure themſelves oil, and to extract it from every ſubſtance they thought capable of yielding it. The invention and uſe of oil is of the higheſt antiquity. It is ſaid Jacob poured oil upon the pillar he erected at Bethel, in memory of his dream [c].

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[b] Acoſta, hiſt. nat. des Indes, fol. 162.; Voyag. de Dampier, t. 4. p. 228.; Voyag. de Frezier, p. 62.; Voyag. de J. de Lery, p. 124.; Voyag. des Holland. t. 2. p. 38.

[c] Gen. c. 28. v. 18.

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Further, if we will believe the ancient tradition of the Atlantides, that people knew very early the ſecret of rendering olives eatable. They gave the honour of this diſcovery to Minerva[k]. It muſt be owned, that the ſoftening the bitterneſs of olives, by the means of brine, is a very ſubtile invention.

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[d] Diod. l. 1. p. 20. [e] Idem, l. 5. p. 389.

[f] Virg. georg. l. 2. v. 420.

[g] Gen. c. 24. v. 11. according to the Hebrew.

[h] Exod. c. 27. v. 20. c. 23. v. 11. [i] Exod. c. 27. v. 20.

Our being accuſtomed at preſent to obtain oil with eaſe, is the reaſon we are not ſenſible of all the merit of the firſt diſcovery. To be convinced of this, we need only reflect upon the immenſe profits the Phœnicians made by the oil they imported into Spain in their firſt voyages[l]. They formerly ſet ſo great a value upon this liquor, that the laws of the ancients expreſsly forbade the olive-gatherers to beat the trees, or break any of their branches[m]. It is not ſurpriſing that the ancients took ſo much care of theſe trees; their oil was exceedingly precious to them, they conſumed vaſt quantities of it, and put it to many more uſes than we do at preſent.

One of the moſt valuable properties of oil, is that of its giving a clear and laſting light, by means of any inflammable matter dipt in it. Without doubt all nations have ſought the means of diſpelling darkneſs. To procure light amidſt the gloomy ſhades of night, was probably one of the firſt objects which employed the thoughts of men. But an eaſy and commodious method of doing this was not ſo ſoon found out. It is probable that originally they knew no other artificial light but fires. It was thus the Greeks procured light in the heroic ages[n]; by bringing, when it was night, a pan of burning coals into their apartments. When they wanted to light themſelves from one place to another, they lighted long thin pieces of wood, and carried them in their hands[o]. There are many nations at preſent in both continents in this ſtate, who have no other method of ſhowing light but by fires[p]. Some traces of theſe primitive practices ſtill remain in many civilized countries. The Chineſe uſe the branches of the pine dried at the fire, as torches for travelling with at night[q].

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[k] Diod. l. 5. p. 389.

[l] See part 2. b. 4. c. 2.

[m] See Plin. l. 15. ſect. 3. p. 734.

[n] See part 2. b. 2. ſect. 2. c. 1. art. 3.

[o] Ibid.

[p] Ramuſio, t. 1. fol. 105. C.; Hiſt. gen. des voyag. t. 3. p. 117.; Voyag. de Coreal, t. 1. p. 212. 213.; Moeurs des ſauvages, t. 2. p. 158.

[q] Mem. du P. le Comte, t. 1. p. 291.

In many places of Europe the country-people uſe pieces of wood dried in ovens for lamps and torches, as they did in the firſt ages.

Induſtrious and ingenious people muſt be ſoon ſenſible of the inconvenience of theſe practices. They ſought therefore for more commodious methods of procuring light. By chance ſome perſon or other took notice, that ſome bodies, after they had been dipt in oil, gave a very laſting light, and conſumed but ſlowly. This obſervation was enough to give a hint for the invention of lamps. This invention took place in the ages we are now upon, and is aſcribed to the Egyptians[r]. Lamps in fact muſt have been very well known in Egypt before Moſes's time. The great uſe which this legiſlator has made of them, and the circumſtantial deſcriptions he has given of their conſtruction, leave us no room to doubt of this[s].

But there are other facts which prove, that the uſe of lamps was much more ancient. In Abraham's myſterious dream recorded in Geneſis, it is ſaid that he ſaw, among other things, a burning lamp paſs before him[t]. Job alſo ſpeaks very often of lamps, and even makes frequent alluſions to them[u]. Doubtleſs theſe machines at firſt were very coarſe and clumſy; by degrees they formed them with much more art and magnificence. Finally, lamps were the moſt perfect means the ancients were acquainted with for giving light. They had no idea of employing tallow or wax for that purpoſe.

ARTICLE V.

Of Gardening.

AMongſt that immenſe number and variety of trees and plants which nature preſents to our view, there are many which, without any care or cultivation, afford a very proper and even delicious nouriſhment to man; for that reaſon, thoſe kinds of trees and plants muſt have very early attracted his attention. The tranſplanting and incloſing theſe valuable kinds in one particular place for the more convenient cultivation of them, was a very natural and obvious thought. This was probably the origin of gardens, which are of the moſt remote antiquity. Ancient authors have left us no particular account of the ſtate of gardening in theſe diſtant ages. We can only, therefore, propoſe a few conjectures on that ſubject.

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[r] Clem. Alex. ſtrom. l. 1. p. 361.
[s] See Exod. c. 25. v. 31. &c.
[t] Gen. c. 15. v. 17.
[u] Job c. 12. v. 5. c. 21. v. 17.

We muſt place the fig-tree at the head of the firſt fruit-trees that were cultivated. This is the opinion of all ancient writers. They aſſure us, that figs were the firſt delicious fruit which mankind were acquainted with. They were even perſuaded, that the diſcovery and uſe of this fruit had contributed very much to draw mankind out of their primitive barbarity[x]. We may ſay as much of the vine, whoſe fruit afforded both agreeable drink and food to men. The ſcriptures tell us that Noah cultivated the vine; and all profane hiſtorians agree in placing Bacchus in the firſt ages of the world[y].

It appears alſo, that the almond-tree was cultivated in the moſt early times. When Jacob reſolved to ſend Benjamin into Egypt, he commanded his ſons to carry Joſeph a preſent of almonds, amongſt ſome other things[z]. We muſt add to theſe likewiſe the pomegranate. We ſee, by the murmurings of the Iſraelites in the wilderneſs, that the fig-tree, the vine, and the pomegranate-tree, muſt have been known and cultivated in Egypt from time immemorial[a].

The cultivation of the trees I have mentioned, is very eaſy. Nothing was neceſſary to procure abundance of their fruit but to lop, prune, and dung them. This was all the knowledge which mankind had for many ages of the cultivation of fruit-trees; and this knowledge, as all ancient traditions inform us, they owed to chance. They ſay a ſhe-goat gave the firſt hint of lopping the vine. This animal having brouſed upon a vine, it was obſerved to bear more plentifully the following year than uſual[b]. From this diſcovery they began to ſtudy the moſt advantageous ways of lopping their vines. Acoſta, in his natural hiſtory of the Indies, relates, that formerly the roſe-buſhes in America grew ſo rank in wood, that they bore no roſes. By accident one of them was ſet on fire, and burnt all but a few ſlips, which the year after produced a great quantity of roſes. From thence the inhabitants learned to prune and cut off the ſuperfluous branches from their roſe-buſhes[c]. It ſeems probable, that a like accident had taught the Greeks how to cultivate theſe ſhrubs; for Theophraſtus tells us, it was the cuſtom in Greece to ſet fire to their roſe-buſhes, without which they would not produce flowers[d]. We might quote a great number of ſuch happy accidents.

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[x] Athen. l. 3. p. 74. [y] See *ſupra*, p. 106.
[z] Gen. c. 43. v. 11. [a] Num. c. 20. v. 5.
[b] Hygin. fab. 274.; Pauſan. l. 2. c. 38.

But theſe operations of lopping, pruning, and dunging were not enough to make their trees bear ſweet, wholeſome, and pleaſant fruit. This ſecret depended upon a more abſtruſe and more difficult operation. It is obvious I mean that of ingrafting. We may boldly reckon this amongſt the number of thoſe arts which have been brought to light by chance. But by what chance? We can only form conjectures about this, more or leſs probable. I am not ſatisfied with what Pliny relates concerning the manner in which he pretends the art of ingrafting was diſcovered. He ſays, that a peaſant deſigning to incloſe his cottage with a fence of pales, ſunk ſome branches of ivy in the ground, and fixed the ends of his pales in theſe, to make them laſt the longer. It happened that the pales, being probably of green wood, took root, and put forth new ſhoots; from whence the peaſant concluded, that they received ſap and nouriſhment from theſe trunks of wood, the ſame as if they had been planted in the earth. The reflections, ſays he, which were made on this event occaſioned the diſcovery of the art of ingrafting[e]. But I cannot perſuade myſelf, that this art owed its origin to ſuch an event as this[f]. Lucretius propoſes a more probable conjecture concerning this diſcovery[g]; but I am notwithſtanding inclined to aſcribe it rather to ſome other accident.

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[c] Fol. 178. *verſo.* [d] De cauſ. plant. l. 3. c. 24. [e] Plin. l. 17. ſect. 24.

[f] See les mem. de l'acad. des ſciences, ann. 1744, M. p. 34. 35.

[g] L. 5. v. 1360, *&c.*

As ſoon as men began to incloſe ſeveral plants and trees in one ſpot of ground, they would perceive a great difference between thoſe which were incloſed, and thoſe of the ſame kinds which remained in the woods and open fields [h]. I imagine, that the idea of ingrafting might be ſuggeſted afterwards, by their diſcovering two branches of different fruit-trees united and incorporated on the ſame ſtock, and by the reflections they would make on this diſcovery. It is not uncommon to ſee the branches, or even the trunks of certain trees when planted very near each other, unite and grow together [i]. The wind, or ſome other accident might rub the branches of two neighbouring trees ſo ſtrongly againſt one another as to wear away the bark, by which means the ſap of each branch might inſinuate itſelf into the other [k], and unite them together. This accident would occaſion their bearing better and more beautiful fruit than they had been uſed to do [l]. This improvement would be obſerved by their eating this fruit, and the cauſe of it would be inquired into. They would examine the condition of the trees which had produced this excellent fruit, and would obſerve that they were united to the neighbouring trees by ſome branches. To this union conſequently they would aſcribe the excellence in their fruit. It is very probable that men would endeavour to imitate this operation of nature, and follow the path which ſhe had pointed out. By long reflection, and repeated trials, they would hit upon the various ways of ingrafting, which we know were in uſe among the ancients. But we cannot place the diſcovery of theſe arts in the ages now under our conſideration.

It is in effect impoſſible to fix the preciſe epocha of the invention of ingrafting. All our doubts however would preſently be diſpelled if we could depend upon the authority of

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[h] Acad. des ſcienc. ann. 1728, H. p. 49. ann. 1744, M. p. 2.

[i] See Acad. des ſcienc. ann. 1738, M. p. 265. 266. ann. 1710, H. p. 79. ann. 1722, M. p. 127.

[k] See ibid. ann. 1722, H. p. 61. ann. 1738, M. p. 265. 266.

[l] M. Duhamel aſſures us, that the branch of a wild tree ingrafted upon its own root gains ſomething. A kind of gland formed at the place of inſertion, ſomewhat refines the juices. Acad. des ſciences, ann. 1728, H. p. 47.

Macrobius. That author aſſerts, that Saturn taught the people of Latium the art of ingrafting trees [m]. But this aſſertion ſeems to me improbable, and the more ſo, as, in the age of Homer and Heſiod [n], the Greeks do not appear to have had any knowledge of ingrafting, or the operations relating to it. It appears to me demonſtrated, that not only in the ages we are now treating of, but a long time after, mankind were as ignorant in the cultivation of trees as a great many nations in Aſia and America are at this day. In the Greater India and in Perſia there are a great many fruit-trees, but almoſt all wild. Ingrafting is there unknown [o]. It is the ſame in South America. All the fruit-trees we meet with in theſe immenſe regions, remain as nature produced them without being ingrafted [p]. I am the more inclined to think that this art was unknown in the firſt ages, as we do not find that fruits make any part of the repaſts deſcribed by Homer, and other writers of antiquity.

As to the various kinds of legumes, it appears that they were known and cultivated very early. The Egyptians made great uſe of theſe in the remoteſt ages. We may judge of this by the murmurs of the Iſraelites in the wilderneſs, who regretted the cucumbers, melons, leeks, onions, and garlic which they had eaten plentifully in Egypt [q].

ARTICLE VI.

Of ſome inventions relative to ſubſiſtence.

ONE of the ſalutary effects of government and civilized ſociety is, that, in theſe ſocieties, men take care to lay up proviſions in a time of plenty againſt a time of ſcarcity.

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[m] Saturnal. l. 2. c. 7. p. 217.

[n] We ſhall diſcuſs this fact in the ſecond part of this work.

[o] Obſervat. aſtron. du P. Souciet, t. 1. p. 18.; Chardin, t. 4. p. 55.

[p] Hiſt. des Incas, t. 2. p. 331.; Voyag. au Perou par M. Bouguer, p. 63.; Voyag. de Frezier, p. 70. & 105.

[q] Num. c. 11. v. 5.

The ſavages know nothing of ſuch precautions; they take no meaſures to provide againſt future wants. They eat as faſt as they gather. They have no granaries nor magazines to preſerve the fruits of the earth [r]; accordingly they are often reduced to great miſery, and ſometimes die of hunger, which is the reaſon theſe nations are ſo little populous. There are ſome regions in America which do not contain, perhaps, above ten thouſand ſouls, in a ſpace of more than eighteen hundred miles. Civilized nations foreſee and provide againſt theſe calamities, by laying up the fruits of the earth in places proper for their preſervation. This piece of ſound policy was eſtabliſhed in Egypt in the remoteſt ages. We ſee, that, in the time of Joſeph, that people were uſed to lay up their corn in public granaries [ſ]. To the ſame provident ſpirit we may aſcribe thoſe ancient laws, ſo ſevere againſt killing any animals uſed in huſbandry [t]. I have ſhewn ſufficiently, in the article of laws and government, that the encouragement of agriculture has always been one of the principal objects legiſlators had in view [u].

I aſcribe to the ſame principle, the origin of the art of preſerving meat by the uſe of ſalt; an art ſo ſimple, and at the ſame time ſo uſeful. It will never be forgot, that a great prince, Charles V. erected a ſtatue in honour of G. Bukel, who found out the ſecret of ſalting and barrelling herrings. The Egyptians ſeem to have known, in the moſt diſtant times, this property of ſalt, of preſerving bodies ſeaſoned with it, or laid in it, from corruption, and how to make the beſt uſe of this diſcovery. The art of ſalting fleſh and fiſh, was very early practiſed by that people [x]. In the time of Mœris, one of the ancient ſovereigns of Egypt, there was a great number of workmen, whoſe only buſineſs was to ſalt the fiſh taken in the canal made at the command of that prince [y]. It was no doubt from the Egyptians, that the Iſraelites had learned the art of preſerving meat by ſalt, an art which we ſee they practiſed in the wilderneſs [z].

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[r] Leſcarbot, hiſtoire de la Nouv. Franc. p. 666. & 669.

[ſ] Gen. c. 41. v. 35. &c.

[t] See *ſupra,* b. 1. p. 35.

[u] Ibid. *loco cit.*

[x] Herod. l. 2. n. 77.

[y] Diod. l. 1. p. 62.

[z] See le P. Calmet in Num. c. 11. v. 32.

Other arts kept pace with agriculture in its improvements. There is ſuch an intimate connection between this and other arts, that they cannot be ſeparated. As agriculture advanced towards perfection, new arts were invented, and the old improved. The moſt neceſſary arts were firſt cultivated, thoſe which adminiſter to luxury ſucceeded. I ſhall follow this order in my future obſervations on theſe ſubjects.

C H A P. II.

Of Cloathing.

NExt to agriculture, the arts of making cloathing are without diſpute the moſt neceſſary and uſeful. There are few inventions which have diſplayed ſo much ſagacity, and done ſo much honour to the human underſtanding. The uſe of cloathing is owing to ſome other cauſe than the mere neceſſity of ſecuring the body againſt the injuries of the air. There are, in fact, many climates where this precaution would be almoſt quite unneceſſary; yet excepting a few of the moſt barbarous ſavages, all mankind have been, and ſtill are accuſtomed to cover their bodies with garments, more or leſs elegant, according to their ſkill and induſtry. Nay more, we ſee that the arts of making garments were invented in the mildeſt climates, where there was the leaſt need for any covering to the body. Neceſſity alone then could not be the cauſe of mens cloathing themſelves; ſome other reaſon muſt alſo have determined them to it. But whatever might be the motive of this cuſtom, ſo ancient and univerſal, it is very certain, that men in all ages have buſied themſelves, in ſearching for proper materials for covering their bodies, without reſtraining the activity of their motions. The working up of theſe materials has been the object of infinite, inceſſant ſtudy and reflection. To theſe earneſt inquiries and reiterated experiments, we are indebted for that prodigious number of different kinds of ſtuffs, which are in uſe amongſt civilized nations.

The manner in which the firſt men were clothed, is another inconteſtable proof of that ſtate of ignorance and barbarithe Samoides, the ſavages of Africa and America, uſe the ſinews of animals for the ſame purpoſe [l]. They muſt have uſed them alſo in the firſt ages. Heſiod mentions theſe ancient practices [m]. Thorns, ſharp bones, and the like, ſupplied the place of awls, needles, and pins, in ſewing their garments. The ancient inhabitants of Peru, who in many reſpects were a ſagacious civilized people, knew nothing of needles or pins. They made uſe of long thorns for ſewing and faſtening their veſtments [n]. We might mention ſeveral nations who at this day are reduced to the ſame expedients [o].

As mankind became more civilized, they improved upon theſe primitive practices. They endeavoured to find garments more agreeable and commodious than the bark of trees, leaves, ſkins, &c. It was ſoon perceived, that a better uſe might be made of the ſpoils of animals. They endeavoured to find out methods for taking off the hair or wool, and forming theſe into a covering as ſubſtantial and warm, but more pliable than their ſkins or furs. This art is very ancient. In the patriarchal ages, we ſee the people of Meſopotamia [p] and Paleſtine [q] took great care of ſhearing their ſheep. The firſt ſtuffs were probably a kind of felt. Men would begin with uniting the different parts of the wool or hair with ſome glutinous matter; by this means they might make a ſtuff, tolerably ſoft, and nearly of an equal thickneſs. The ancients made very much uſe of felt [r].

One diſcovery leads to another. The thought of ſeparating the hair or wool from the ſkin, was one good ſtep; but great advantage could not have been made of this, without the further diſcovery of the art of uniting the ſeparate parts into one continued thread, by means of the ſpindle. This invention is of very great antiquity. The Egyptians ſay, it was Iſis who

[l] Voyage à la baye d'Hudſ. t. 2. p. 26.; Hiſt. gen. des voyag. t. 5. p. 171.; Rec. des voyag. de la comp. des Indes Holland. t. 1. p. 159.; Moeurs des ſauvages, t. 2. p. 160.

[m] See op. v. 544.

[n] Hiſt. des Incas, t. 2. p. 63. & 77.

[o] See Lettr. édif. t. 11. p. 421.; Voyag. de Frezier, p. 109. & 214.; Voyag. des Holland. t. 1. p. 159.; Hiſt. des Incas, t. 1. p. 107.; Hiſt. gen. des voyag. t. 9. p. 308. t. 5. p. 171.; Voyag. à la baye d'Hudſon, t. 2. p. 168.

[p] Gen. c. 31. v. 19.

[q] Ibid. c. 38. v. 12. 13.

[r] Plin. l. 8. ſect. 73. p. 475.

taught them the art of ſpinning [r]. The Chineſe give the honour of this invention to the conſort of their emperor Yao [t]. We may obſerve on this ſubject, that the traditions of almoſt all nations aſcribe the honour of inventing the arts of ſpinning, weaving, and ſewing, to women. The Lydians aſcribed this diſcovery to Arachne [u], the Greeks to Minerva [x], the Peruvians to Mama-oella [y], wife to Manco-capac their firſt ſovereign. It was alſo to women, that the Greek and Roman antiquities attributed the invention of the needle [z], and the art of ſpinning the ſilk of certain worms, and weaving it into ſtuffs [a]. I cannot determine whether theſe traditions be founded on real hiſtory, or have only ariſen from theſe particular occupations having in all ages and countries been allotted to the fair ſex.

We can ſay nothing certain concerning the manner in which men firſt made uſe of yarn. It is probable they would make many eſſays, and compoſe a variety of works [b], as treſſes, net-work, &c. till by degrees they found out the web by warp and woof; the moſt uſeful invention, perhaps, which mankind are in poſſeſſion of. For, in fact, it is by means of this art that we can work up an infinite variety of materials into warm, commodious, and beautiful garments.

We might form a great many conjectures about the origin of weaving *. We might ſay with an ancient author, that men owe the diſcovery of this art to the ſpider [c]. They took notice of the manner in which this inſect warped its web; they obſerved how ſhe guided and managed the threads, by the weight of her own body, &c. But without mentioning the various hypotheſes which might be formed on this ſubject, I imagine, that the idea of the web of warp and woof might ſtrike men firſt, from the inſpection of the inner barks of certain trees. Some of theſe, if we except their coarſeneſs and ſtiffneſs, bear a very great reſemblance to a web; the fibres are interwoven and croſs each other almoſt at right angles *. The manner therefore in which the filaments of theſe barks are diſpoſed, might very poſſibly give the firſt hint of the web of warp and woof.

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[r] Mart. Capella, l. 2. p. 39.

[t] Martini, hiſt. de la Chine, t. 1. p. 61.

[u] Ovid. metam. l. 6. *init.*; Plin. l. 7. ſect. 57. p. 414.

[x] See part 2 b. 2. ſect. 2. c. 2.

[y] Hiſt des Incas, t. 1. p. 22. & 31.

[z] Hygin. fab. 274.

[a] Ariſt. hiſt. anim. l. 5. c. 19. p. 849.; Plin. l. 11. ſect. 26. p. 604.; Iſidor. orig. l. 14. c. 6.

[b] See Lucret. l. 6. v. 1349. &c.; Braun. de veſtitu ſacerdot. Hebr. n. 233. p. 250. &c.

* By weaving I mean all ſorts of works that are made in the loom.

[c] Democritus apud Plut. t. 2. p. 974. A.

When we reflect on the prodigious number and great variety of machines which are at preſent employed in the fabrication of our ſtuffs, we can hardly allow ourſelves to believe, that men in theſe firſt ages could form any thing like them. Yet it is eaſy to conceive they might, if inſtead of viewing our own complicated methods, we obſerve the ſimple ones of ſeveral modern nations.

The inhabitants of the Greater India, Africa, and America, at preſent weave ſtuffs, with a few very ſimple inſtruments. The people of theſe remote ages might do the ſame. Though the workmen of theſe countries are ſtrangers to many branches of knowledge which we poſſeſs, yet we can never ſufficiently admire the beauty and fineneſs of their ſtuffs. They uſe no other inſtruments but a ſhuttle and a few ſmall pieces of wood [d]. By the help, therefore, of ſuch ſimple tools, men in theſe early times might accompliſh the taſk of weaving cloths of warp and woof.

However this may be, the invention of weaving is extremely ancient. Abraham in refuſing the booty offered him by the King of Sodom, ſays, "I will not take from a thread of the "woof, even to a ſhoe-latchet [e]." Moſes ſays that Abimelech made a preſent of a vail to Sarah [f]. He obſerves alſo, that Rebecca covered herſelf with a vail, when ſhe perceived Iſaac [g]. Jacob gave his ſon Joſeph a coat of divers colours [h]. Moſes tells us further, that Pharaoh arrayed this patriarch in

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* I have a piece of this kind brought from the Indies.

[d] Lettr. édif. t, 9. p. 420, ; Hiſt. gen. des voyag. t. 3. p. 184.; Voyag. de Damp. t. 4. p. 232. 233. ; Hiſt. des Incas, t. 2. p. 77. ; Vogag. de J. de Lery, p. 275.; Nouv. relat. de la France equinox, p. 135.

[e] Gen. c. 14. v. 23.

[f] Ibid. c. 20. v. 16.

[g] Ibid. c. 24. v. 65.

[h] Ibid. c. 37. v. 3.

veſtures of fine cotton [i]. A weaver's ſhuttle is mentioned in the book of Job [k]. Theſe facts ſufficiently prove the great antiquity of the art of weaving with warp and woof [*].

It may not perhaps be improper to remark further, that in theſe very ancient times this work was performed in a ſtanding poſture [l]. Both Homer [m] and Virgil [n] atteſt this. This was owing to the different conſtruction of their looms from what ours are at preſent. The warp was extended perpendicularly from top to bottom, as it is at preſent in our tapeſtry looms, with this difference, that it was not made faſt at bottom upon a cylinder, as in our manufactories of tapeſtry. They kept it firm by means of a piece of wood to which they hung very heavy weights [o]. The Egyptians, it is ſaid, were the firſt who changed this incommodious and fatiguing poſture, into that of ſitting at this work, as our weavers of tapeſtry, linen, and woollen cloth, do at preſent [p]. It is well known that it was women who originally ſpun, wove, and even dyed wool and cloth [q].

The wool and hair of animals, no doubt, were the firſt materials moſt generally uſed for making garments. There are however ſeveral plants, ſuch as cotton, flax, hemp, &c. which are alſo very proper for this purpoſe. It would not probably be long before they began to work cotton. The ſeeds of this ſhrub are lodged in a kind of down, exceeding fine and ſoft. This down has a great reſemblance to fine wool, and requires but little preparation [r]; they muſt have begun, therefore, betimes to make it into cloth. What I now advance is not a mere conjecture. The robe in which Pharaoh arrayed Joſeph was of cotton [ſ]. A few reflections will be ſufficient to convince us of this.

[i] Gen. c. 41. v. 42. [k] C. 7. v. 6.

[*] Plato reckons weaving amongſt the firſt invented arts. De leg. l. 3. p. 835.

[l] See Junius de pictura veter. l. 1. c. 4. p. 26.

[m] L. 1. v. 31. [n] Georg. l. 1. v. 294.

[o] Seneca, ep. 90. p. 408. See Braunius de veſtitu ſacerdot. Hebr. c. 16. p. 269.

[p] Junius de pictura veter. l. 1. c. 4. p. 26.; Braunius, p. 254. 267. & 320.

[q] See Exod. c. 35. v 25.

[r] See J. de Lery, voyag. d'Ameriq. p. 274.

[ſ] See le P. Calmet, Gen. c. 41. v. 42.

Almoſt all commentators on the ſcriptures tranſlate the Hebrew word[t] uſed by Moſes to deſcribe the nature of the ſtuff given to Joſeph, by the word *Byſſus*. But the diſpute is at preſent, what kind of matter that was which was anciently thus named. Some think it meant a kind of ſilk of a bright yellow, which we ſee ſometimes adhering like a tuft to a very large kind of ſhell-fiſh called *pinnæ marinæ*[u]. We know that the ancients knew and uſed this as a material for making cloth[x]. Others think that the *Byſſus* ſignifies a kind of very fine flax, which grew in Egypt, or Judea[y]. Others again are of opinion that it is cotton. This opinion ſeems to me the more probable, as we cannot apply the deſcription given of the *Byſſus* by Pollux to any thing but cotton. This writer ſays, that this material came from a kind of nut which grew in Egypt; that they opened the nut, extracted this ſubſtance, ſpun it, and wove it for garments[z]. Philoſtrates deſcribes it much in the ſame manner[a]. Theſe characteriſtics agree very well with cotton. It is found in a kind of brown nut, which grows on a ſmall ſhrub. But not to enter any further into this diſquiſition, it ſeems evident from the analogy of languages, that the word uſed by Moſes to deſcribe Joſeph's garment, muſt mean cotton[*]. We learn further from profane authors, that robes of cotton were very ancient in Egypt, and that they were worn only by perſons of the greateſt diſtinction[b].

The uſe of flax, hemp, and other filamentous plants, was not ſo obvious as that of cotton. Their fibrous parts muſt firſt be diſengaged from the bark and wood, before they can be ſpun or wove. In order to this, it is neceſſary to water, break, ſwitch, and heckle them. Yet it cannot be doubted that robes of linen were uſed in very ancient times. Iſis is ſaid to have made the firſt diſcovery of this kind of garment [c]. It is certain from the teſtimony of Moſes, that flax was cultivated in Egypt from time immemorial. He takes notice, that the flax was deſtroyed by that dreadful hail, which was one of the plagues the Lord ſent down upon Egypt [d]. We ſee alſo that this legiſlator forbids the Iſraelites to wear a garment made of linen and woollen together [e].

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[t] שש *Scheſch.*

[u] Geſner, hiſt. animal. l. 4. c. 6.; Acad. des ſcienc. ann. 1712, M. p. 204.

[x] Baſil. in hexam orat. p. 7.; Procop. de Juſtiniani fabriciis, l. 3. p. 30.; Calmet, t. 7. p. 145.

[y] Bochart, Phaleg. l. 3. c. 4. p. 177. 178.

[z] L. 7. c. 17. p. 741.

[a] De vita Apollon. l. 2. c. 20. p. 71. See alſo Strabo, l. 15. p. 1016.; Philo de vita Moſis, p. 667 C.

[*] This is the opinion of ſome of the moſt celebrated interpreters and commentators. See le P. Calmet, t. 2. p. 351. 353. t. 7. p. 144.

[b] Plin. l. 19. ſect. 2. p. 156.

The goodneſs of cloths depends, in part, on the operation of fulling. It is this which gives them their conſiſtence and ſolidity. This operation is performed by the playing of two large wooden mallets, by means of a wheel, upon the cloth incloſed in troughs. The redoubled blows which it receives, render it more even and ſubſtantial. The art of fulling was not known in Europe till after the Trojan war [f]; but it is highly probable, this ſecret was diſcovered long before in Aſia and Egypt. Their firſt eſſays, no doubt, were very imperfect; probably not unlike the methods uſed by ſeveral ignorant and barbarous nations in the preſent times. The inhabitants of Iceland full their cloths by pouring hot urine upon them, rolling and daſhing them againſt the ground, and treading them with their feet for a whole day. They full their gloves and bonnets in the ſame manner, only it is with their hands. A man muſt be both ſtrong and dexterous, to full a ſingle waiſtcoat or three pair of ſtockings in a day [g]. Such probably was the ſtate of the fulling-art at its beginning. Beſides, in whatever way they performed this operation in theſe early times, it muſt have been very tedious and fatiguing, ſince they had no knowledge of the fulling-mill.

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[c] Mart. Capella, l. 2. p. 39.; Jul. Firmicus, l. de profeſſ. relig. p. 49.

[d] Exod. c. 9. v. 31.

[e] Deut. c. 22. v. 11.

[f] See part 2. book 2. ſect. 2. c. 2.

[g] Hiſt. nat. de l'Iſlande, t. 1. p. 266.

ARTICLE I.

Of the art of Dying.

THE materials of which cloths are made, for the moſt part, are naturally of dull and gloomy colours. Garments would conſequently have had a diſagreeable uniformity, if we had not found the art to remedy this, and vary their ſhades. The accidental bruiſing of fruits or herbs, the effect of rain upon certain earths and minerals, might ſuggeſt the firſt hint of the art of dying, and of the materials proper for it. Every climate furniſhes man with ferruginous earths, with boles of all colours, with ſaline and vegetable materials for this art. The difficulty muſt have been to find the art of applying them. But how many eſſays and trials muſt have been made, before they found out the moſt proper methods of applying them to ſtuffs, ſo as to ſtain them with beautiful and laſting colours? In this conſiſts the principal excellence of the dyer's art, one of the moſt ingenious and difficult which we know.

Dying is performed by means of limes, ſalts, waters, lyes, fermentations, macerations, &c. Dying is diſtinguiſhed into two kinds, the hot, and the cold. Hot dying is when the colouring materials are boiled, either with the ſtuffs, or before the ſtuffs are put into them. Cold dying is when the colours are diſſolved in ſomething cold, or at leaſt when they cool the liquor before they put in the ſtuffs. We cannot diſcover which of theſe was firſt uſed, and ſtill leſs in what manner they were performed. We muſt be content with knowing that the art of dying is very ancient. It was practiſed in the ages which are the ſubject of this firſt part of our work. The Chineſe pretend that they owe this diſcovery to Hoang-ti, one of their firſt ſovereigns [h]. It is ſaid in Geneſis, that they bound a ſcarlet thread upon the arm of one of Tamar's children [i].

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[h] Martini. hiſt. de la Chine, l. 1. p. 42.

[i] Gen. c. 38. v. 27. See Calmet, t. 2. p. 350.

Job, who I think lived in the ſame age[k], ſpeaks of the luſtre of the colours of the ſtuffs which were brought from India[l]. We cannot however give a circumſtantial account of the particulars of their knowledge in this art of dying, nor to what degree of perfection they had brought it. I ſhall have occaſion to ſpeak more at large, on this ſubject, in the ſecond part.

One of the moſt agreeable effects of the art of dying, is the diverſifying the colours of ſtuffs. There are two ways by which this agreeable variety is produced, either by needle-work with threads of different colours, on an uniform ground; or by making uſe of yarn of different colours in the weaving. The firſt of theſe inventions is attributed to the Phrygians[m], a very ancient nation[n]; the laſt to the Babylonians[o]. Many things incline us to think that theſe arts were known even in the times of which we are now treating. The great progreſs theſe arts had made in the days of Moſes[p], ſuppoſes that they had been diſcovered long before. It appears to me certain, then, that the arts of embroidery and weaving ſtuffs of various colours, were invented in the ages we are now upon. But I ſhall not inſiſt on the manner in which they were then practiſed, as I can ſay nothing ſatisfactory upon that ſubject.

Another art nearly related to that which we have been ſpeaking of, is that of cleaning and whitening garments when they have been ſtained and ſullied. Water by itſelf is not ſufficient for this. We muſt communicate to it by means of powders, aſhes, &c. that deterſive quality which is neceſſary to extract the ſtains which they have contracted. The ancients knew nothing of ſoap, but ſupplied the want of it by various means. Job ſpeaks of waſhing his garments in a pit with the herb *Borith*[q]. This paſſage ſhews that the method of cleaning garments in theſe ages, was, by throwing them into a pit full of water, impregnated with ſome kind of aſhes; a method which ſeems to have been very univerſal in theſe firſt times.

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[k] See our diſſertation.

[l] Gen. c. 28. v. 16.

[m] Plin. l. 8. ſect. 74. p. 476.

[n] See Herod. l. 2. n. 2.

[o] Plin. *loco ſupra cit.*

[p] See part 2. b. 2. c. 2.

[q] C. 9. v. 30. The Hebrew text has *Bor*; but the beſt interpreters think it is the ſame with the *Borith* of Jeremiah, c. 2. v. 22. & of Malach. c. 3. v. 2.

Homer deſcribes Nauſicaa and her companions waſhing their garments, by treading them with their feet in a pit [r].

With reſpect to the herb which Job names *Borith*, I imagine it is ſal-worth. This plant is very common in Syria, Judea, Egypt, and Arabia. They burn it, and pour water upon the aſhes. This water becomes impregnated with a very ſtrong lixivial ſalt, proper for taking ſtains or impurities out of wool or cloth.

The Greeks and Romans uſed ſeveral kinds of earths [ſ], and plants [t], inſtead of ſoap. The ſavages of America [u] make a kind of ſoap-water, of certain fruits, with which they waſh their cotton beds and other ſtuffs. In Iceland the women make a lye of aſhes and urine [x]. The Perſians employ boles and marls [y]. In many countries they find earths, which, diſſolved in water, have the property of cleaning and whitening cloth and linen [z]. All theſe methods might perhaps be practiſed in the primitive ages*. The neceſſities of all mankind are much the ſame, and all climates preſent them nearly with the ſame reſources. It is the art of applying theſe which diſtinguiſhes polite and civilized nations from ſavages and barbarians.

C H A P. III.

Of Architecture.

IN all ages, mankind have been obliged to ſeek for ſome ſhelter againſt the injuries of the air, and the aſſaults of wild beaſts. Thus the art of building was one of the firſt that was practiſed, both before and after the flood[a]. Architecture, therefore, owed its birth to neceſſity, and its embelliſhments to luxury. Men by reflecting upon their works, and comparing them with each other, improved their taſte and ſkill. They firſt diſcovered the rules of proportion. They afterwards added ſuch ornaments as were ſuggeſted by knowledge, or by fancy, in different ages and countries. So that architecture has been always changing, been embelliſhed, corrupted, and reſtored, according to the good or ill taſte of different ages and nations.

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[r] Odyſſ. l. 6. v. 92.

[ſ] Plin. l. 35. ſect. 57.

[t] Idem, l. 27. ſect. 88.

[u] Voyag. de J. de Lery, p. 276.

[x] Hiſt. de l'Iſlande, t. 1. p. 266.

[y] Chardin, t. 4. p. 66. 67.

[z] Journ. des ſcav. ann. 1752, Juil. p. 418.; Hiſt. gen. des Antilles, par le P. du Tertre, t. 2. p. 76. in 4°. Paris, 1667.; Hiſt. nat. de Colonne, t. 2. p. 113. 114.; Piganiol. deſcript. de France, t. 5 p. 72. edit. *in* 12°. of 1722.

* I have read ſomewhere of certain ſavages, who laid their cloths for a conſiderable time amongſt the dung, and afterwards waſhed them in clear water, by which they ſucceeded in taking out the ſtains, the ſalts in the dung acting as a ſoap.

As long as the poſterity of Noah remained united, they were capable of cultivating the antediluvian diſcoveries which had been preſerved. The deſign which they formed, and in part executed, of building a city in the plains of Shinar[b], and erecting a tower in it, of a prodigious height[c], is a demonſtration, that the new inhabitants of the earth were not quite ignorant of architecture. But the confuſion of their tongues obliging them to diſperſe, they loſt for the moſt part both the theory and practice, even of the moſt neceſſary arts.

The wandering life which almoſt all the families of the world led, in the firſt ages, after the confuſion of tongues, gave them no opportunity of cultivating arts, partly through want of ſkill, and partly through want of neceſſary tools. Theſe firſt colonies had for ſome time no other habitations but dens and caverns[d]. Several nations, at preſent, preſent us with an image of thoſe wretched ages[e].

As ſoon as mankind had provided for the ſupply of their moſt preſſing wants, they would deſire to quit thoſe dreary and unwholeſome dwellings, and ſeek for more convenient and agreeable habitations. Theſe firſt huts would be of different materials, as the climates afforded, and of different forms, according to the ſtupidity or ingenuity of the people. Reeds, canes, the branches, leaves, and bark of trees, together with clay, were the firſt materials employed in building. The firſt houſes in Egypt and Paleſtine [f] were of reeds and canes interwoven. There are ſtill ſome of this kind to be found in Peru [g]. The firſt houſes of the Greeks were only of clay. This people were for ſome time ignorant of the art of hardening it to make bricks [h]. The houſes in Iceland are built of rough ſtones, with no other cement than clay and moſs. They are covered with turf [i]. The Abyſſinians dwell in cabins built of clay and ſtraw [k]. The houſes in Monomotapa are only of wood [l]. There have even been formerly [m], and are at preſent [n], ſome nations who for want of materials, but chiefly for want of knowledge, built their huts of the bones and ſkins of ſea-dogs, and other large fiſhes.

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[a] Gen. c. 4. v. 17. [b] Ibid. c. 11. v. 4.

[c] Ibid. See what I have ſaid on that ſubject in the introduction, p. 2.

[d] Diod. l. 1. p. 12.; Æſchyl. in Prometh. vincto, v. 449. &c.; Vitruv. l. 2. c. 1.; Plin. l. 7. ſect. 57. p. 413.; Pauſan. l. 10. c. 17. p. 836.; Suid. *voce* Δενδεχάζειν, t. 1. p. 522.; Martini, hiſt. de la Chine, t. 1. p. 19. 20.; Bibl. univ. t. 2. p. 412.

[e] Rec. des voyag. au Nord, t. 8. p. 207.; Voyag. de Coreal, t. 1. p. 232. 238.; Hiſt. gen. des voyag. t. 1. p. 96. t. 8. p. 6.; Belon, obſervat. l. 2. c. 61.; Lettr. edif. t. 5. p. 273.

Wood is a material ſo proper for building, that men, no doubt, employed it for this purpoſe, in places where it could be eaſily procured. They began with interweaving the branches of trees in a rude manner [o], upon ſtakes fixed in the ground, and afterwards daubing them with clay, and covering them with leaves or turf [p]. The form of theſe firſt cabins was round like our glaſs-houſes. The hearth was in the middle of the floor, and a ſmall hole at the top gave vent to the ſmoke. They admitted light only by the door. Such was probably the manner of building in the firſt ages, which has been continued by ſome nations both ancient [q] and modern [r]. Some of the firſt houſes, too, might be built of the trunks of trees, piled upon each other, and forming a ſquare [s]. We ſee ſtill the traces of theſe ancient practices in ſeveral villages of Germany, Poland, and Ruſſia. Such alſo are the habitations of the people of Florida and Louiſiana [t], of the Eſkimaux [u], and of ſeveral other nations [x].

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[f] Diod. l. 1. p. 52.; Sanchon. apud Euſeb. p. 35. A.

[g] Voyag. au Perou, par M. Bouguer, p. 8. & 10.

[h] Plin. l. 7. ſect. 57. p. 413.

[i] Hiſt. nat. de l'Iſlande, t. 1. p. 254. & 277. t. 2. p. 186. 187.

[k] Bibl. raiſ. t. 1. p. 57.; Hiſt. gen. des voyag. t. 1. p. 221.

[l] Hiſt. gen. des voyag. t. 1. p. 91.

[m] Strabo, l. 15. p. 1050. & 1056.

[n] Journ. du P. Feuillée, t. 2. p. 587.; Voyag. de Frezier, p. 130.

[o] Martini hiſt. de la Chine, p. 19. 20.

[p] Vitruv. l. 2. c. 1.

[q] Vitruv. l 2. c. 1.; Diod. l. 5. p. 346.; Strabo, l. 4. p. 301.; Tacit. de mor. Germ. n. 16.; Hiſt. de Languedoc, t. 1. p. 44. n. 9.

[r] Rec. des voyag. qui ont ſervi à l'établiſſement de la campagn. des Ind. Holland. t. 5. p. 36.; Mem. de Trev. Mai 1717, p. 713. 714.; Hiſt. gen. des voyag. t. 11. p. 25.

The conſtruction of theſe firſt houſes required neither much preparation, nor much knowledge. They needed neither many machines, nor many tools. They felled their trees originally, as the ſavages do at preſent, by the help of fire. They undermined them by little and little with torches or fire-brands, which they took care to keep cloſe to the tree, and always burning. By the ſame means, too, they cut them into lengths, by placing fire-brands under them at proper diſtances [y]. Theſe, it is highly probable, were the methods uſed in the primitive times.

By degrees, tools for cutting and planing wood, would be invented. The firſt tools were made of certain ſtones which were hard, and not brittle. Some of theſe ancient tools are ſtill to be ſeen in the cabinets of the curious [z]. The greateſt part of the American nations have no other tools for cutting and hewing wood [a]. Afterwards tools made of metal were invented; but the number of them was very inconſiderable at firſt. We may judge of the knowledge of the moſt ancient nations, by that of the Peruvians before the arrival of the Spaniards in their country. They had no other inſtruments for working wood, but the axe and plane. Nails, ſaws, hammers, and other carpenters tools, were quite unknown to them [b]. By degrees mankind improved in ſkill and induſtry; they ſubſtituted bricks, ſtones, and marble, in the place of wood, and raiſed edifices equally ſolid and magnificent.

[s] See Vitruv. l. 2. c. 1.
They build houſes in this manner at preſent in the Palatinate of Ruſſia.

[t] Moeurs des ſauvag. t. 2. p. 7. 8. 11.

[u] Voyage de la baye d'Hudſon, t. 2. p. 43.

[x] Voyag. de Frezier, p. 65. 66.; Chardin, t. 1. p. 134.; Nouvelle rat. de la France equinox, p. 141. 146.; Hiſt. gen. des voyag. t. 3. p. 185.

[y] Moeurs des ſauvag. t. 2. p. 110.; Leſcarbot, hiſt. de la N. Franc. p. 776.; N. relat. de la France equinox, p. 152.; Hiſt. de la Virginie, p. 314.

[z] See *infra*, c. 4.

[a] Ibid.; Relat. de la riviere des Amazones, par le P. d'Acugna, t. 2. p. 213.

[b] Hiſt. des Incas, t. 2. p. 61. 62.

The art of employing the materials which are moſt proper for maſonry, muſt have coſt the firſt architects a great deal of thought and ſtudy. It is probable, that ſtone was not the firſt kind of materials they made uſe of in building the houſes which ſucceeded their huts and cabins. The cutting and hewing of ſtone requires the knowledge of more arts than men were acquainted with in thoſe firſt ages. They began with uſing bricks [c]; that is, clay formed in ſquare moulds, dried in the ſun, or baked in ſtoves, to give them hardneſs and ſolidity. The tower of Babel was built of ſuch materials [d]. The Egyptians alſo in all ages made great uſe of bricks [e]. Tiles, which are ſo commodious a cover for houſes, were invented in very ancient times [f].

We are abſolutely ignorant of the preciſe time when men began to build houſes of hewn ſtone. We may ſay the ſame of the invention of mortar, lime, and plaiſter, &c. Theſe inventions were introduced inſenſibly, and by little and little. Several motives might make men apply their thoughts very early to find out the means of building ſolid and durable habitations. But it was properly agriculture that gave birth to architecture. The aſſiduous care and attendance which this way of life requires, obliged thoſe who followed it to ſettle in one place, to contrive houſes laſting and commodious [g]. Accordingly it was in Chaldea, China, Egypt, and Phœnicia, that any thing deſerving the name of architecture was firſt ſeen. Moſes has preſerved the names of three cities which Nimrod built in Chaldea [h]. Aſſur, a ſhort time after, and not far from the ſame place, founded Nineveh and two other cities [i]. The Chineſe ſay, that Fo-hi incloſed cities and towns with walls [k]. Laſtly, we ſee, that, in the ages of Abraham and Jacob, there were ſeveral cities in Paleſtine and the adjacent provinces [l]. As to Egypt, the prodigious antiquity of her cities is univerſally acknowledged [m]. There were ſome alſo very early built in Greece [n].

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[c] Sanchoniat. apud Euſeb. p. 35. D.

[d] Gen. c. 11. v. 3.

[e] See Exod. c. 1. v. 14. c. 5. v. 7.

[f] Plin. l. 7. p 413.

[g] See *ſupra*, book 1. art. 2. p. 36.

[h] Gen. c. 10. v. 10.

[i] Ibid. v. 11. & 12.

[k] Martini, hiſt. de la Chine, l. 1. p. 28.; Extrait des hiſt. Chin.

[l] Gen. c. 19. v. 1. & 20. c. 28. v. 19.

Architecture, however, could make no great progreſs till mankind had diſcovered certain arts, which are abſolutely neceſſary to its perfection; ſuch as making of machines for raiſing and tranſporting weighty bodies, the art of taming animals, and training them to carry materials; laſt of all, the art of working metals, particularly iron. Not that it is abſolutely impoſſible to build houſes of ſtone, without the knowledge of theſe arts. The example of the people of Peru and Mexico proves the contrary. They had neither carts, ſledges, nor beaſts of burden [o]. They tranſported their materials by mere ſtrength of arm [p]. They knew nothing of ſcaffolds, cranes, or other machines proper for the conſtruction of buildings [q]. They were even ignorant of the uſe of iron [r]. Notwithſtanding all this, they had the addreſs to raiſe buildings of ſtone, which are beheld with admiration even at this day [ſ]. Their way of dreſſing ſtones was, to break them with certain flints very hard and black [t], then poliſh them by rubbing one againſt another [u]. They might perhaps uſe the ſame methods in theſe primitive ages. There are ſtill nations who know no better ways of cutting ſtones [x], and yet build very grand edifices with few tools and machines [y]

But theſe practices are ſo tedious and fatiguing, that as long as mankind knew no better, buildings of ſtone muſt neceſſarily have been very rare. Such edifices could not be common till after the invention of tools proper for hewing ſtones, and of machines for raiſing and tranſporting them with eaſe. For this reaſon I am fully perſuaded, that the houſes in theſe firſt cities were generally of wood or mud. This is ſtill the manner of building in the greateſt part of Perſia[z], and Turky, and almoſt over all Africa, and the Eaſt[a].

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[m] Hom. Iliad. l. 9. v. 381. &c.; Herod. l. 2. n. 99.; Diod. l. 1. p. 18.; Syncell. p. 54. 55.

[n] Pauſ. l. 1. c. 38. p. 93. l. 8. c. 38. l. 10. c. 6.; Euſeb. præp. evang. l. 10. c. 10. p. 489. C.; Syncell. p. 64.

[o] Acoſta, hiſt. nat. des Indes, l. 6. c. 14; Hiſt. des Incas, t. 1. p. 60. & 265.

[p] Hiſt. des Incas, *loco cit.*

[q] Ibid. p. 266. 267. t. 2. p. 62.; Acoſta, *loco cit.*

[r] Hiſt. des Incas, *loco cit.* [ſ] Ibid. p. 264. & 268.

[t] Ibid. t. 2. p. 62.; Voyag. au Perou, par D. Antoine d'Ulloa, t. 1. p. 391.

[u] Ibid. [x] Hiſt. gen. des voyag. t. 1. p. 332.

[y] Voyag. de la compagnie des Ind. Holl. t. 4. p. 378.

If we will believe the ancients, the art of hewing ſtones, and building houſes of them, was known to ſome nations in the moſt diſtant ages. The Egyptians gave the honour of this diſcovery to Toſorthus[b] the ſucceſſor of Menes[c]. They even attributed the conſtruction of a pyramid to Venephes[d], one of their firſt kings[e]. Beſides, it is not ſurpriſing that the art of dreſſing ſtone, and building with it, was ſo ſoon found out in Egypt. The nature of that climate has forced thoſe who inhabited it in all ages, to apply to that ſtudy. Egypt wants wood fit for building, and even for burning[f]. We ſee, that, in the very firſt ages, the Egyptians were obliged to ſupply their furnaces with ſtraw and ſtubble[g]. Building with ſtone and marble, therefore, was abſolutly neceſſary to that people. Accordingly we find, that they had very early diſcovered methods of tranſporting theſe materials with eaſe. Almoſt from the commencement of their monarchy, they had drawn canals[h] from the Nile, which communicated with, and fell into one another. It appears alſo, that wheel-carriages were very ancient in Egypt. Chariots were pretty common there in the age of Joſeph[i].

The firſt monuments of architecture, properly ſo called, muſt have been very clumſy and unpoliſhed. It cannot be ſuppoſed, that regularity and the beauties of proportion were very exactly obſerved in them. We cannot, however, determine the true ſtate of this art, or the progreſs it had made in the period we are now conſidering. We have nothing to enable us to form a right judgment of it. Yet I am inclined to think, that, toward the concluſion of theſe ages, the inhabitants of certain countries began to have ſome idea of beauty and magnificence in building.

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[z] Chardin, t. 1. p. 134.; Tavernier, t. 2. l. 4. c. 4. p. 16.; Gemelli, t. 1. p. 447. t. 2. p. 266. 267.

[a] Voyag. de Damp. t. 3. p. 47.; Bibl. raiſ. t. 1. p. 57.; Hiſt. gen. des voyag. t. 1. p. 231.; Lettr. édif. t. 16. p. 32.

[b] Syncell. p. 56. B.

[c] Marſh. p. 39. Antiquity acknowledges Menes firſt king of Egypt.

[d] See Syncell. p. 54. 55.

[e] Marſh. p. 45.

[f] Voyag. d'Egypte par Granger, p. 13.

[g] Exod. c. 5. v. 7.

[h] See *ſupra*, c. 1. art. 1. p. 93.

[i] Gen. c. 45. v. 19.

At firſt the only object of building was neceſſity. But as mankind were civilized, their knowledge increaſed, and they began to think of ornament. Architecture then called in the aſſiſtance of ſeveral other arts. By means of the chiſel they ſubſtituted pillars of ſtone and marble in the place of thoſe wooden ſtakes which had ſupported the roofs of their firſt cabins. The other embelliſhments of architecture were of the ſame ſort, a kind of ſubſtitutes to the pieces of wood which were firſt employed in building. When theſe came to be executed in ſtone, they were enriched with ſeveral ornaments. By theſe means, this art attained by degrees to elegance and perfection.

In the period of this firſt part of our work, ſeveral nations had an idea of deſigning, carving, and ſculpture[k]. They probably ſoon made uſe of theſe arts in embelliſhing their buildings. Profane hiſtorians ſpeak of temples, palaces, and other ſtructures raiſed by the firſt ſovereigns of Egypt, Nineveh, and Babylon[l]. To theſe we may add the building of the tabernacle by the Iſraelites in the wilderneſs, in which we ſee Moſes uſed pillars with baſes and chapiters. This points out gradual improvements. For they would firſt begin with uſing pillars quite plain, afterwards they would add baſes, and chapiters by way of ornaments. Moſes probably took the idea of this kind of embelliſhment from the Egyptians[m]. In a word, the grandeur and magnificence of ſeveral ſtructures, raiſed by the Egyptians in the beginning of that period which is to be the ſubject of the ſecond part of our work, put it beyond all doubt, that architecture had made very rapid progreſs in Egypt; and give room to think, that the ornamental part of it was in ſome degree known and practiſed in ſeveral countries in the period we are now upon.

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[k] See *infra*, c. 5.

[l] Herod. l. 2. n. 99.; Diod. l. 1. p. 16. 18. & 55. l. 2. p. 115. 120.; Jul. African. apud Syncell. p. 54. 55.

[m] See part 2. b. 2. ſect. 1. c. 3.

CHAP. IV.

Of the diſcovery and working of metals.

THE diſcovery of metals was probably owing to accident. But we owe the art of working them, and applying them to all their various uſes, to the neceſſities and induſtry of thoſe nations who lived by agriculture. Without the art of working metals, agriculture never could have made any great progreſs, or have arrived at that degree of perfection in which we find it in the very firſt ages, in ſome countries. We may ſay the ſame of all the mechanic arts. They owe almoſt all their improvements to the diſcovery and uſe of metals.

How, when, and by whom was this diſcovery made? It is difficult to anſwer theſe queſtions. Nor is it eaſier to explain the manner in which mankind found out the art of working metals, and applying them to their various uſes. The ancients looked upon the invention of metallurgy as ſomething ſo divine and marvellous, that they aſcribed it to celeſtial beings [n].

Metals were diſcovered, and they underſtood the art, even of working iron, before the deluge [o]. But that dreadful calamity deprived the greateſt part of mankind of this, as well as of other arts. All antiquity agrees in ſaying that there was a time, when the uſe of metals was unknown to mankind [p]. This is the more credible, as ancient authors ſpeak of ſeveral nations to whom this important diſcovery was unknown [q]. We ſee that theſe people uſed ſtones, flints, the horns of animals, the bones of beaſts and fiſhes, ſhells, reeds, and thorns for all the purpoſes for which civilized nations uſe metals at preſent [r]. The ſavages ſet before us a ſtriking picture of the ignorance of the ancient world, and the practices of primitive times. They have no idea of metals [s], and ſupply the want of them by the means I have juſt now mentioned [t].

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[n] See Syncell. p. 14.

[o] Gen. c. 4. v. 22.

[p] See Plat. de leg. l. 3. p. 805.

[q] Agatarchid. apud Phot. c. 48. p. 1369.; Diod. l. 3. p. 213.; Strabo, l. 15. p. 1025. & 1032. l. 16. p. 1123. 1124.

Metallurgy, however, was an early diſcovery amongſt the nations who applied to agriculture. Neceſſity forced them to ſtudy the working of metals, in order to form thoſe tools they ſtood in need of. We ſee the uſe of metals eſtabliſhed in Egypt and Paleſtine, a few ages after the flood. The Egyptians gave the honour of this diſcovery to their firſt ſovereigns [u]; the Phœnicians to their ancient heroes [x]. Theſe traditions are fully confirmed by the authority of the ſacred books. In the days of Abraham, metals were common in Egypt and in ſeveral countries of Aſia [y]. The art of metallurgy had even then arrived at great perfection [z]. Nor is it ſurpriſing, that this art made ſuch rapid progreſs in Aſia and Egypt. Theſe countries were the firſt where mankind ſettled, and formed themſelves into powerful monarchies [a]. I am however of opinion, that, in theſe ages, they underſtood only the working of a few metals, as gold, ſilver, and copper. Iron, that metal ſo neceſſary, and at preſent ſo common, was long either quite unknown, or but little uſed by ancient nations. Let us trace the ſteps of the human mind on this important article, and collect all the light which ancient hiſtory affords us concerning the diſcovery and improvements of this neceſſary art. Let us alſo compare what probably happened in the primitive times, with what we ſee practiſed in ſome places in our own age.

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[r] See Herod. l. 7.; Diod. l. 3. p. 185.; Strabo, l. 15. p. 1050.

[s] Hiſt. gen. des voyag. t. 2. p. 643.; Voyag. de Coreal, t. 1. p. 228.; Mœurs des ſauvages, t. 2. p. 109.

[t] See Lettr. édif. t. 11. p. 420. 421. t. 20. p. 224. t. 25. p. 124. t. 18. p. 237.; Voyag. de Frezier, p. 64. 109. & 214.; Hiſt. nat. de l'Iſlande, t. 2. p. 219.; Voyag. à la baye d'Hudſon, t. 2. p. 167.; Hiſtoire gen. des voyag. t. 1. p. 9. & 22.; Rec. des voyag. au Nord, t. 1. p. 220.

[u] Agatarchid. apud Phot. c. 11. p. 1341.; Diod. l. 5. p. 19. l. 3. p. 184.; Palaph. in chron. Paſchal. p. 45.

[x] Sanchoniat. apud Euſeb. p. 35. B.

[y] Gen. c. 13. v. 2, c. 24. v. 15. c. 24. v. 22. & 53.

[z] See *infra*, p. 153. & chap. 5.   [a] See above, b. 1. p. 36.

The diſcovery of metals would not coſt the firſt deſcendents of Noah much ſearching for. It would not be neceſſary to dig into the bowels of the earth for what preſented itſelf upon the ſurface. A thouſand events, of which we might quote many examples, would put metals into the hands of the firſt men [b]. The devaſtations occaſioned by great rains and inundations, were probably the firſt means of the diſcovery of metals. In ſome countries, after violent rains, metals are found almoſt in every brook [c]. Torrents pouring from the mountains, depoſite great quantities of gold upon the ſand and gravel in the valleys [d]. In the kingdom of Achem, it is not neceſſary to dig into the earth for that metal; it may be picked up on the ſides of the mountains, and in gutters made by the torrents [e]. The ancients ſpeak alſo of ſeveral rivers very famous for rolling down gold, ſilver, copper, and tin, in their waters [f]. We know of ſeveral rivers which ſtill enjoy this advantage [g].

As to mines, ſeveral accidents might diſcover to mankind the mineral ſubſtances which the earth concealed in her boſom. Thunder might break off pieces of rocks or mountains, and thereby betray the precious metals they contained [h]. A gold mine was diſcovered in Peru by ſuch an accident about the end of the laſt century [i]. Sometimes the winds, by tearing up trees by the roots, have diſcovered metals and minerals [k]. It is well known how the famous mines of Potoſi were diſcovered. An Indian climbing up ſome rocks covered with trees and buſhes, took hold of a ſmall tree, which grew in a cleft of a rock, and pulled it up by the root; he obſerved ſomething glitter in the hole, which upon examination he found to be an ingot of ſilver [l]. Sometimes alſo torrents carrying away the earth by their impetuoſity, lay open the veins of metals [m]. Labourers, in digging, have ſometimes hit, by accident, upon very rich mines [n]. It was in this manner, as Juſtin relates, that the gold mines which formerly rendered Spain ſo famous, were diſcovered [o]. In a word, ſmall branches ſometimes appear upon the ſurface, and point to the veins below [p].

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[b] See Alonſo Barba, l. 1. c. 23.; Alex. ab Alex. gen. dier. l. 4. c. 9.; Johnſton thaumat. claſſ. 4. c. 26.; Journ. des ſcav. May 1683, p. 90.

[c] Voyag. de Frezier, p. 121.; Voyag. de Coreal, t. 1. p. 101.; De la fonte des mines par M. Hellot, p. 13. & 35.

[d] Voyag. d'Anſon *in* 4° p. 42.; Lettr. édif. t. 4. p. 92.; Rep. des lettr. t, 14. p. 1318.; Voyag. de Coreal, t. 1, p. 235.

[e] Lettr. edif. t. 2. p. 73.; Hiſt. gen. des voyag. t. 10. p. 458.

[f] See below, p. 147. [g] See below, p. 147.

[h] See Juſtin. l. 44. c. 3.; Alonſo Barba, l. 1. c. 23. p. 86.; Hellot de la fonte des mines, p. 43.

[i] Voyag. de Frezier, p. 147.; Voyage au Perou par D. Ant. d'Ulloa, t. 1. p. 532.

[k] Alonſo Barba, l. 1. p. 85.

When men afterwards came to ſearch for mines, the obſervations they had made on the appearance and qualities of the ſoil where metals had been originally found, would ſerve them for a guide. Nature furniſhes ſeveral indications and external marks, by which it is not very difficult to diſcover mines. Theſe ſoils have particular characteriſtics which are eaſily obſerved and remembered [q]. Their colour, particularly, is different from that of other ſoils, and gives ſtrong indications of the minerals they contain [r]. By this, and the obſervation of the herbs they produce, a gueſs may be formed even of the kind of mineral they conceal [ſ]. Theſe ſoils are for the moſt part barren, rough, and ſteep [t]. Very often they produce no graſs [u]. A careful inſpection of one mine therefore would lead them to diſcover all others.

If it is eaſy to imagine how the firſt men might diſcover metals, it is difficult to conceive, and ſtill more difficult to explain how they arrived at the art of working them. It is only by means of fire that we can prepare metals for our uſe. But before they can be forged, they muſt be melted and refined, that is, ſeparated from all other ſubſtances which are mixed with them, and caſt into maſſes of pure metal, which may be afterwards divided at pleaſure. Theſe operations are very difficult, and require no little dexterity, knowledge, and reflection. Fuſion is the firſt means uſed for theſe purpoſes.

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[l] Acoſta, hiſt. nat. des Indes, fol. 139. v.

[m] Alonſo Barba, l. 1. p. 85. ; Acoſta, fol. 140. *verſo.*

[n] Lettr. édif. t. 4. p. 151. ; Hellot de la fonte des mines, p. 7. 23. & 62.

[o] L. 44. c. 3.

[p] Hellot de la fonte des mines, p. 71. ; Alonſo Barba, t. 2. p. 269.

[q] See Hellot de la fonte des mines, p. 71.

[r] Voyag. de Frezier, p. 102. ; Alonſo Barba, t. 2. p. 287.

[ſ] Alonſo Barba, t. 1. c. 1. p. 3. & 24. ; Senac. nouv. cours de chymie, t. 2. p. 314.

[t] Agatarchid. apud Phot. c. 11. p. 1340. ; Strabo, l. 3. p. 216. A. ; Plin. l. 33. ſect. 21. p. 617. ſect. 31. p. 621. ; Voyag. de Frezier, p. 151. 152. ; Lettr. édif. t. 17. p. 441. ; Voyag. de V. le Blanc, part 1. p. 261. part 3. p. 105. & 118. ; Aſia di Barros, deca 1. l. 10. fol. 186. ; Voyage de Coreal, t. 1. p. 296. ; Acoſta, hiſt. nat. des Indes, fol. 131. 132. & 137. 138.

[u] Voyag. au Perou par D. Ant. d'Ulloa, t. 1. p. 523. ; Journal des obſerv. du P. Feuillée, t. 2. p. 589.

We may ſuppoſe that vulcanos might poſſibly give men ſome idea of metallurgy. The ſtreams of melted minerals, which from time to time are thrown up from theſe natural furnaces [x], might probably put men upon trying to work metals by the help of fire. What renders this conjecture the more credible, is, that thoſe perſons who are repreſented as the inventors of metallurgy, both by the fables and hiſtories of antiquity, lived in countries famous for vulcanos [y].

Ancient writers, however, have pretty generally agreed in aſcribing this diſcovery to the burning of foreſts, where the ſoil contained metals; the violence of the fire, according to them, having melted the metals, they flowed out and diffuſed themſelves upon the ſurface of the ground [z]. It was in this manner, according to the old traditions of Greece, that iron was diſcovered on Mount Ida [a]. It was to a ſimilar accident they attribute the diſcovery of the ſilver mines in the Pyrenees. Theſe mountains, ſay they, were formerly covered with thick woods. Some ſhepherds accidentally ſet them on fire, which continued to rage for a good many days, and made ſtreams of pure ſilver flow from the ſides of the mountains down into the plain [b]. Such events are very poſſible, nay even probable. I imagine however, that the idea of employing fire in the working of metals, and ſeparating them from other ſubſtances, was ſuggeſted by ſome other accidents more frequent and familiar.

It is related of certain ſailors, that having landed on an unknown iſland, and kindled a fire at the foot of a mountain, they obſerved ſilver flowing from it [c]. It is reported alſo, that the leader of a new colony ſettled not long ago in Paraguay, obſerving a ſtone of uncommon hardneſs, and ſpotted with black, took it and threw it into a very hot fire; ſome time after, he ſaw a quantity of as good iron as any uſed in Europe running from the fire [d]. Once more, it is reported, that the captain of a Spaniſh ſhip, being obliged to put in at a deſert iſland, there repaired his ſhip's furnace. In making the hearth, he uſed ſeveral layers of earth. When he arrived at Acapulco, the whole crew were greatly ſurpriſed to find under the aſh-pan of the furnace, a ſolid maſs of gold, which the violence of the fire had melted and ſeparated from the earth [e]. I am inclined to think that ſome ſuch accidents as theſe might give the firſt hint of the art of working metals. Perhaps ſome perſon by chance expoſed earth or ſtones, which contained metals, to the heat of a violent fire, and took notice of a liquid matter running from it, which took different ſhapes, and became hard as it cooled. This would excite curioſity. The experiment would be repeated; and thus by degrees they would find out the art of melting metals.

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[x] Buffon, hiſt. nat. t. 1. p. 502. 503. 507. 515. 533.; Alonſo Barba, t. 2. p. 205.

[y] See Diod. l. 5. p. 335. 336.; Strab. l. 6. p. 423.; Pauſ. l. 10. c. 11.; Bochart, Chan. l. 1. c. 12. p. 431.

[z] Lucret. l. 5. v. 12. & 41. &c.

[a] Marm. Oxon. ep. 11.; Seneca, ep. 90. p. 405.; Clem. Alex. ſtrom. l. 1. p. 401.

[b] Ariſt. de mirab. auſcult. p. 1157. E.; Diod. l. 5. p. 358.; Strab. l. 3. p. 217. 218.; Athen. l. 6. p. 233.

I will confeſs however, that after all the conjectures we can form about theſe and the like accidents, the mind would not be entirely ſatisfied; ſome doubts would ſtill remain, if we ſuppoſed that theſe firſt mines were in the ſame ſtate, and had the ſame qualities with ours at preſent. The refining of metals in our times, commonly requires much labour, and many precautions; but we ought to conſider that this operation probably was not near ſo difficult in the times we are now ſpeaking of. In the firſt ages after the deluge, metals were commonly found on the ſurface of the earth, or at a very moderate depth, whatever way they were brought thither, whether by torrents, or by ſome fire which made them run from the mountains. Now metals, in this ſtate, are not much mixed with other bodies, and conſequently are much more eaſily melted and refined, than thoſe which are brought from the boſom of the earth[f]. The ancients ſpeak of ſeveral countries where they picked up gold which had no need of refining[g], and we know of ſome where this may ſtill be done[h]. In ſome parts of Africa[i] they find virgin gold ſo pure, that it is caſt into ingots of an excellent quality by fire alone, without the help of any diſſolvent. Several writers mention grains of natural gold of a prodigious bigneſs[k]. Some have even weighed more than an hundred marks[l]. A modern traveller ſays, he had ſeen a maſſy branch of gold, a cubit in length. This ingot, which was very pure, had been found in the river Coueſme, in the kingdom of Mozambique[m]. They find frequently in Peru pieces of virgin-gold, ſome weighing more than eight or ten marks[n], and ſome more than an ounce[o]. This gold needs no melting nor refining[p]. In the kingdom of Macaſſar, beſides gold duſt, which they gather in great quantities, they pick up in the valleys where the torrents have flowed, ingots of pure gold without any mixture[q]. In ſeveral countries, even at preſent, they gather gold which requires no artificial refining, only by waſhing away the earth, in certain places, by ſtreams of water[r]. This operation is very ſimple, and needs neither the chiſel, the hammer, the mill, nor quickſilver. There is nothing to do but to waſh the earth well, and a few ſmall pieces of wood are ſufficient to ſtir and mix it properly[ſ]. This gold got by waſhing, was not unknown to the ancients[t]. Laſtly, the gold which is found in great quantities[w] in certain rivers, is very fine[x], and requires little preparation. There is even ſome found ſo very pure, that it is ductile and malleable the moment it is taken out of the water[y].

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[c] Anc. relat. des Indes & de la Chine, p. 6.

[d] Lettr. édifiantes, t. 11. p. 419. 420.

[e] Mem. de Trevoux, Sept. 1713, p. 1547.; Gemelli, t. 5 p. 296. & 297.

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[f] See Plin. l. 33. ſect. 20. p. 616.; Acoſta, hiſt. nat. des Indes, fol. 145. &c.

[g] Ariſt. de mirab. auſcult. p. 1153. D.; Agatarchid. apud Phot. c. 149. p. 1369.; Diod. l. 2. p. 161. l. 3. p. 213.; Strabo, l. 3. p. 216. l. 4. p. 290. & 319.; Plin. l. 33. ſect. 20. 21. p. 616. 618.

[h] See Alonſo Barba, t. 1. p. 99.

[i] Hiſt. gen. des voyag. t. 2. p. 642.

[k] Ariſt. de mirab. auſcult. p. 1153. D.; Plin. l. 33. ſect. 22. p. 618.; Strabo, l. 3. p. 217.; Voyage de Frezier, p. 151.; Alonſo Barba, t. 2. p. 287.; Journal du P. Feuillée, t. 1. p. 468.; Hiſt. gen. des voyag. t. 5. p. 224.; Merc. de France, Juill. 1726, p. 1676.

[l] Albert M. l. 4. de mineral. c. 7. p. 275.

[m] Voyag. de Pyrard, part 2. p. 150.

[n] Acoſta, hiſt. nat. des Indes, fol. 134. *verſo.*; Voyag. de Frezier, p. 76.

[o] Ibid. p. 99.

[p] Acoſta, fol. 134. *recto.*

[q] Rep. des lettr. t. 14. p. 1318.

[r] Voyag. de Frezier, p. 76. & 101. 102.

[ſ] Ibid. p. 101.

[t] See Diod. l. 5. p. 350. 351.; Strabo, l. 3. p. 217.; Plin. l. 33. ſect. 21. p. 616.

Men at firſt would find no greater difficulty in refining ſilver and copper. In thoſe days they would meet with theſe metals naturally pure and unmixed with other bodies, which render the ſmelting-art ſo difficult at preſent. They knew formerly[z], and we know now[a], of rivers which roll ſilver and copper in their ſtreams. Frequently too theſe metals are brought to light by torrents, and ſpread upon the ſurface of the earth[b]. They are then found even in large maſſes, pure and without any mixture. Threads of pure ſilver have been often found in clues, reſembling burnt lace[c]. In ſome places of Peru they pick up pieces of virgin-ſilver, only by digging lightly in the ſand[d]. Some of theſe pieces weigh ſixty, and even one hundred and fifty marks[e]. This virgin-ſilver is malleable, and requires no further preparation, before it is wrought[f]. It is the ſame with copper. The ancients ſpeak of countries where that metal was found naturally pure[g]. In ſeveral parts of Canada[h] and Louiſiana[i], they gather red copper very pure. Maſſes of this metal, weighing one hundred and fifty quintals [k], fit for working, have been diſcovered. It appears often in ſlender threads or branches [l].

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[w] Alonſo Barba, t. 1. p. 100. 101.; Acoſta, fol. 135.; Conq. du Perou, t. 1. p. 342. Voyag. de D. Ant. d'Ulloa, t. 1. p. 513.; Voyag. de Pyrard, part 2. p. 149. 150.

[x] Plin. l. 33. ſect. 21. p. 616.; Lettr. édif. t. 2. p. 73. t. 4. p. 92.; Voyag. de Pyrard, p. 150.

[y] Relat. de la riv. des Amazones par le P. d'Acugna, t. 3. p. 80.

[z] Strabo, l. 3. p. 220.; Philoſtrat. de vita Apollon. l. 3. c. 54.; Photius, bibl. p. 1007.

[a] Leſcarbot, hiſt. de la N. France, p. 94.; Hiſtor. de las guerras civil. da Granada, p. 2.; Anc. relat. des Indes & de la Chine, p. 20.; Hiſt. gen. des voy. t. 6. p. 50. & 484.; Hellot de la fonte des mines, p. 15.

[b] Alonſo Barba, t. 2. p. 447. & 451.; Plin. l. 34. ſect. 47. p. 668.; Iſidor. origin. l. 16. c. 21.; Rec. des voyages au Nord, t. 10. p. 155.; Journal des ſcav. Novem. 1676, p. 128.; Hiſt. nat. de Colonne, t. 2. p. 514.

[c] Voyage de Frezier, p. 145.

[d] Voyage au Perou par D. Ant. d'Ulloa, t. 1. p. 527.

[e] Ibid. p. 529. [f] Lettres édif. t. 18. p. 216. 217.

[g] Ariſt. de mirab. auſcult. p. 1154. A.

[h] Rec. des voyages au Nord, t. 9. p. 179.

[i] Hiſt. nat. de Colonne, t. 2. p. 514. Near the lake Ponchartrain are ſome mountains whoſe centre are of pure copper.

Even when they afterwards came to dig metals from mines, they would at firſt find little difficulty in refining them. They ordinarily find metals quite pure, or with very little mixture, in the tops of mines [m]. It is even not uncommon to meet with pure [n], and even malleable [o] gold in ſome mines. They tell of a gold mine diſcovered not long ago in the Brazils, ſo rich, that they got that metal near the ſurface of the earth [p]. Travellers aſſure us, that, in ſeveral parts of Monomotapa, they find gold by digging in the earth the depth of two or three feet [q]. At the diſcovery of the famous mine of Potoſi, the vein was ſo rich, that the metal appeared like a rock above ground as high as a ſpear. It was a kind of ridge upon the top of the mountain, for three hundred feet in length, and thirty in breadth [r]. In the mine of Salcedo, at firſt they found lumps of ſilver, which gave them no further trouble than cuttting them with the chiſel [ſ]. In the year 1713, they diſcovered on the mountain Ucuntaya in Peru, a prodigious cruſt of ſolid ſilver, which yielded ſeveral millions [t]. The mine of St Eliſabeth was almoſt entirely of pure ſilver [u]. In the ſame diſtrict, there was another mine whoſe ſurface was pure copper [x]. In the mines of Rouſſillon, the workmen find ſheets of red copper, formed by nature, very fine and ductile. Theſe ſheets are either ſcattered amongſt the gravel, or as it were paſted againſt the ſtones [y]. In a word, we ought to judge of the ancient mines, by thoſe which are ſometimes diſcovered in countries which are but little frequented. Pure and malleable metals are commonly found in mines which have never been wrought [z]. The French, on their firſt arrival in Canada, met with a mine, where they gathered many pieces of copper, very fine and beautiful [a]. In ſeveral places of Siberia, ſtones are found on the ſurface of the earth, which contain a great deal of copper [b]. In Hudſon's bay there is a mine of red copper, ſo rich and pure, that without uſing fire, and only by beating it between two ſtones, the inhabitants make it into all ſorts of utenſils they have occaſion for [c].

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[k] Voyag. de Frezier, p. 76.

[l] Hellot de la fonte des mines, p. 33.

[m] See Strab. l. 3. p. 290. & 319.; Hiſt. gen. des voyag. t. 2. p. 530. 531. & 640.; Acoſta, hiſt. nat. des Indes, fol. 145. *recto*.; Voyag au Perou par D. d'Ulloa, t. 1. p. 374.; Hellot de la fonte des mines, p. 25. 26. & 68.

[n] Plin. l. 33. ſect. 20. p. 616.; Merc. de France, Juillet 1731, p. 1809.; Janvier 1732, p. 157.

[o] Acad. des ſcien. 1718, M. p. 87.; Hiſt. gen. des voyag. t. 2. p. 640.

[p] Merc. de Franc. July 1726, p. 1676.

[q] Hiſt. gen. des voyag. t. 10. p. 329.

[r] Acoſta, hiſt. nat. des Ind. fol. 140. *verſo*.

[ſ] Voyag. de Frezier, p. 245.; Voyag. au Perou par D. Ant. d'Ulloa. t. 2 p. 207.;

[t] Voyag. au Perou par D. Ant. d'Ulloa, t. 1. p. 513. t. 2. part 2. p. 286.

[u] Alonſo Barba, t. 1. p. 72. [x] Ibid. p. 108.

[y] Le Monnier, obſervat. d'hiſt. nat. p. 210.

Mankind then, in theſe firſt ages, might procure metals without ſo much ſkill and labour as are now neceſſary in digging mines and refining metals [d]. Beſides, the conſumption could not be very great, ſo that the reſources we have mentioned would be ſufficient for a long time.

As the world became more populous and civilized, the conſumption of metals would be greater. We are aſſured both by ſcripture and profane hiſtory, that the uſe of metals was very common in Aſia and Egypt, about the middle of the period we are now examining. We cannot ſuppoſe that this plenty was altogether the gift of nature. By this time, no doubt, men had begun to dig mines, and no longer procured them with the ſame facility as at firſt. It then became neceſſary to ſtudy the art of ſeparating metals from the other bodies with which they are commonly mixed.

Beſides, it is not enough to expoſe metals to the fire as they come out of the mine. Many other precautions muſt be taken to extricate them from the foreign bodies with which they are intangled. The ore muſt not only be pounded and waſhed, but it muſt alſo be mixed with certain earths, and certain ſalts, and in a certain proportion. Theſe are the only means of ſmelting and refining the greateſt part of metals. Thoſe who firſt attempted to refine metals, muſt often have met with the ſame accidents which happened to the ancient inhabitants of Peru in ſmelting ſilver ore. The Incas had ſilver mines in many of their mountains, but at firſt they knew not the art of refining that metal. They only put the ore into the fire, but inſtead of ſmelting they ſaw it evaporate in ſmoke. Neceſſity, the mother of invention, after ſeveral experiments, furniſhed them with a method of preventing this accident. They thought of mixing a certain quantity of lead with the ſilver. The experiment was made, and ſucceeded to their wiſh [e].

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[z] Hellot de la fonte des mines, p. 73.

[a] Leſcarbot hiſt. de la N. France, p. 402. & 455.

[b] Rec. des voyag. au Nord, t. 8. p. 381.

[c] Rec. des voy. t. 3. p. 316. ; Merc. de Franc. Fevr. 1719, p. 49.

[d] See Agricola de nat. foſſil. l. 8. *init.*

As ores became more refractory, it would become neceſſary to ſtudy the art of uſing fire to the beſt advantage, and of gradually increaſing its force and activity. It would coſt them much ſtudy to find out what kind of fewel was moſt proper, whether coals, turf, wood, &c. Furnaces were probably invented very early, but bellows were not. That inſtrument, ſo ſimple and ſo uſeful, was certainly unknown in theſe firſt ages, and is ſtill ſo to a great many nations [f]. They muſt therefore have ſupplied the want of this inſtrument by ſome means or other; but we have no tradition on that ſubject.

Neither can we ſpeak with any certainty of the methods uſed for ſmelting and refining metals in theſe firſt ages. We know but little of the proceedings of theſe ancient metallurgiſts. I ſhall lay before the reader the manner in which the Egyptians refined their golden ore, as it is deſcribed by Agatharchides [g], and Diodorus [h]. This people affirmed that they had learned the working of metals from their firſt ſovereigns [i]. Their practice, therefore, may throw ſome light on the proceedings of the moſt ancient ages.

The Egyptians began by pounding the ore, till they had reduced it to about the bigneſs of a grain of millet. They then threw it under millſtones, which made it as ſmall as the fineſt meal. They next ſpread this duſt on large boards, a little inclining; and ſprinkled it plentifully with water, to carry off all the groſs terreſtrial particles. After repeating this watering ſeveral times, the workmen rubbed the remaining matter for ſome time between their hands, wiping it with little ſpunges, till nothing was left but the gold duſt quite clean. Another ſet of workmen then took this gold, and put it into earthen pots, where they mixed with it, in certain proportions, lead, ſalt, a little tin *, and barley meal. They then poured the whole into veſſels, which they covered and luted with great care, ſetting them in a refining furnace for five days and five nights ſucceſſively. Then taking them out and letting them cool, they removed the heads of the veſſels, and found the gold quite pure, with very little waſte. Such was the method uſed by the Egyptians, from time immemorial, for refining gold. In general, it does not appear that the ancients made any uſe of quickſilver, in refining either gold or ſilver †. They employed lead [k] as a menſtruum, and by frequent meltings made metals perfectly pure at laſt. The Peruvians who made great uſe of gold and ſilver, knew no better method of refining them [l].

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[e] Hiſt. des Incas, l. 8. c. 25. p. 360.

[f] Voy. de Coreal, t. 1. p. 212.; Hiſt. des Incas, t. 2. p. 61.; Hiſt. gen. des voyag. t. 3. p. 182.

[g] Apud Phot. c. 11. p. 1340.

[h] L. 3. p. 182.

[i] Agatarch. p. 1342.; Diod. p. 184.

In whatever way the ſecret of ſmelting and refining metals came to be found out, it was known very early. Job ſpeaks of the manner of trying gold by fire [m]. The great quantity [n] of gold and ſilver which we find diffuſed amongſt ſome nations in the moſt diſtant ages, muſt convince us, that the arts of working mines, of ſmelting and refining metals, muſt have been very ſoon diſcovered in ſeveral countries. The ſcriptures take notice, that Abraham was very rich in gold and ſilver [o]. Even then, theſe metals were uſed in commerce as the common ſign or price of all other commodities. The four hundred ſhekels of ſilver which Abraham gave to the ſons of Heth for the burying-plac [p], the money which Jacob committed to his ſons when he ſent them down into Egypt to buy corn [q], demonſtrate the great antiquity of metals in commerce.

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* There are tin mines in Africa. Voyage de V. le Blanc, part 2. p. 80.; Hiſt. gen. des voyag. t. 1. p. 25.

† See Plin. l. 33. ſect. 32. & les notes de Perrault ſur Vitruve, l. 7. c. 8.

[k] See Plin. ibid. ſect. 19.; Suid. *voce* ἐξελιπε φυσητ. t. 1. p. 765.

[l] Hiſt. des Incas, t. 2. p. 315. 316. [m] C. 28. v. 1.

[n] See Diod. l. 1. p. 18. [o] Gen. c. 13. v. 2. [p] Ibid. c. 23. v. 16.

[q] Ibid. c. 43. v. 12.

It muſt have been ſome time before men diſcovered the art of forging metals, or working them into proper ſhapes, for the uſes they deſigned. At firſt, I imagine, they had no other way of ſhaping metals, but by caſting them in moulds. Strabo [r] ſpeaks of a nation who made uſe of caſt copper, not knowing how to forge it; and there are ſeveral nations at this day no leſs ignorant [s]. But people of induſtry and ingenuity would ſearch for a more commodious method of working metals, and more ſuitable to the ſeveral uſes for which they deſigned them. They would ſoon obſerve, that all metals, excepting lead and tin, after the firſt melting, acquire a very ſenſible ſoftneſs and flexibility in the fire. This would give them the hint of working them in that ſtate of heat, into many various forms. In conſequence of this, they would contrive inſtruments proper for forging metals on coming out of the fire. Flints and ſtones were probably the firſt tools they uſed in this work. Modern travellers meet with nations who have no other inſtruments for forging metals [t].

Theſe rude and clumſy methods would not be followed long by any ingenious inventive people. Finding the inconvenience of theſe tools of ſtone or wood, it would ſoon occur to them that metal would afford the moſt proper inſtruments for working metals. At firſt they would caſt their tools in moulds, rough and imperfect enough no doubt. The Peruvians had not the hammer. They ſupplied its place with a kind of tools made of a mixture of copper and braſs, of a ſquare form, and yet made ſo as to be conveniently graſped [u]. The firſt tools of metal would be ſomething of this ſort, till by degrees becoming more and more perfect, they would at laſt be able to form metals into the moſt exact and commodious forms. The invention of the hammer, the anvil, and the pincers, was placed by the ancients in the remoteſt ages. The Egyptians attributed theſe inventions to Vulcan, one of their firſt ſovereigns [x]. Others give this honour to Cyniras [y], the father of Adonis, which makes them no leſs ancient. In a word, the hammer and anvil are mentioned in the book of Job[z].

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[r] L. 15. p. 1044. [s] Hiſt. gen. des voyag. t. 1. p. 231.

[t] Rec. des voyages au Nord, t. 3. p. 316.; Hiſt. gen. des voyages, t. 5. p. 172.; Merc. de France, Février 1719, p. 43. & 49.; Bibl. univ. t. 2. p. 378.

[u] Hiſt. des Incas, t. 2. p. 61.

[x] Palœphat. in Chron. Alex. p. 45. C.; Cedren. p. 19. D.; Suid. t. 2. p. 85.

[y] Plin. l. 7. ſect. 57. p. 413.

The art of forging metals, without all doubt, was known in Egypt, and ſome parts of Aſia, in the moſt diſtant times. We ſee arms of metal in uſe in Paleſtine, a few ages after the flood. Moſes ſays, that Abraham drew his ſabre to ſacrifice his ſon Iſaac[a]. The ancient patriarchs ſhearing[b] their ſheep, is a further proof, that the fabricating of metals was then well underſtood. They knew even then how to execute works in gold and ſilver, which require delicay and exactneſs[c]. In a word, we ſee every thing relating to metals, the places where they are formed, the manner in which they are wrought, &c. exactly deſcribed in the book of Job[d]. The great degree of perfection to which the art of working metals was brought in the days of Moſes, is alone a ſufficient evidence of its great antiquity. The artiſts could not have acquired ſuch exquiſite ſkill as to execute the works he ſpeaks of[e], if the firſt diſcovery of their art had not been very ancient.

Mankind would begin with working ſuch metals as were moſt eaſily procured and fabricated. Gold, ſilver, and copper, poſſeſs both theſe qualities. I have already obſerved, that conſiderable maſſes of theſe metals were ſometimes found pure and without mixture, that they were eaſily melted and refined. For theſe reaſons, gold, ſilver, and copper, were the firſt metals that were wrought. At firſt, men employed gold and ſilver to uſes for which they do not ſeem to be deſigned by nature[f]. There was an old tradition among the Egyptians, that the art of working gold and copper being found out in Thebais, they firſt made arms of theſe metals to exterminate the wild beaſts, and afterwards tools to cultivate the earth[g]. The Egyptians did then, as we know ſeveral nations have done, who put gold and ſilver to almoſt all ſorts of uſes[h]. When the Carthaginians arrived the firſt time in Betica*, the inhabitants of that country employed ſilver for the loweſt and moſt common uſes[i]. The hiſtory of the diſcovery of America confirms the truth of theſe ancient traditions. The Spaniards ſaw with ſurpriſe, the Peruvians and Mexicans make uſe of gold and ſilver for all ſorts of purpoſes[k]. This practice was common in ſeveral other nations of America[l]. But no metal was more commonly uſed by the ancients than copper.

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[z] Chap. 41. v. 15. & 20. [a] Gen. c. 22. v. 6.

[b] Ibid. c. 31. v. 19. c. 38. v. 12. [c] See *infra*, chap. 5.

[d] Chap. 28. I have already ſaid, that I believe Job to have been cotemporary with Jacob. See our diſſertation at the end of this volume.

[e] See part 2. b. 2. ſect. 1. c. 4.

[f] See Lucret. l. 5. v. 1269.; Servius in Æneid. l. 12. v. 87.

[g] Diod. l. 1. p. 19.

The diſcovery and working of theſe metals I have been ſpeaking of, were no doubt of great advantage to mankind; but yet not to be compared with that of iron. There is no metal of ſo great uſe in the exerciſe of all the arts, or has contributed ſo much to their improvement. But the finding and working of iron muſt have been a very late and difficult diſcovery. Without doubt, it was the laſt of all metals mankind were acquainted with, or knew how to uſe.

Nature has indeed diffuſed iron over all the world; but ſtill there is no metal ſo difficult to be known and diſcovered. Nothing diſcloſes it. The moſt part of other metals frequently ſhow themſelves ſuch as they are, that is, in the real form of metals. The ores of gold, ſilver, and copper, have commonly a certain colour and brightneſs which diſcover them. But iron is almoſt always concealed under appearances, which do not indicate any metal to vulgar eyes. It is not commonly found but in the form of ſtone, and deep under ground. Even in thoſe countries where it moſt abounds, and is moſt expoſed to view, the people trample upon it without knowing it; it ſeems only a blackiſh ſand or gravel, having no marks to diſtinguiſh it from other kinds of matter, which are not iron, and yet have the ſame appearances. One muſt be a good natural philoſopher to know this metal in the mine, or to find it out in the earths and ſands which contain it. How could it occur then to men, who had never ſeen iron, had no idea of it, and were not looking for it? How could they extract this metal from that ſand and gravel, by a chain of operations as much hidden from the mind as the materials were from the eye.

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[h] See Herod. l. 3. n. 23.; Heliod. Æthiop. l. 9. 10.; Rep. des lettr. t. 23. p. 521.

* That is, Portugal.

[i] Strabo, l. 3. p. 224.

[k] Voyage de Coreal, t. 1. p. 250.; Conq. du Pérou, t. 1. p. 76.

[l] Voyage d'Anſon in 4°. p. 42.; Riviere des Amazones par le P. d'Acugna, t. 3. p. 188.; Conq. du Pérou, t. 1. p. 24.; Voyag. de Coréal, t. 1. p. 280.

In reality, the greateſt obſtacle to the uſe of iron was the difficulty of making it. Iron, of all metals, is the moſt difficult to bring into fuſion. Beſides, one ſingle melting is ſufficient to render gold, ſilver, or coper ductile and malleable. It is not ſo with iron. A piece of this metal once melted, is as untractable as ever, and not more ductile than a flint. In this ſtate it is ſtill hard and brittle, and cannot bear the hammer, either cold or hot. The file, the chiſel, and the graver, can make no impreſſion upon it [m]. In order to forge iron, therefore, it was neceſſary to find out the art of ſoftening it, and rendering it ductile. To do this, it muſt be melted a ſecond time, then beat with very heavy hammers; this maſs muſt be put into the furnace, and heated till it is upon the point of fuſion, then put again in this ſtate under the hammer; this operation muſt be repeated ſeveral times: at laſt this hard and brittle maſs, by frequent heating and hammering, becomes forgeable [n]. All theſe operations much more complicated than thoſe on other metals, muſt have long retarded the uſe of iron.

I will confeſs, that ſome lucky accident might, and probably did, aſſiſt men at firſt in this diſcovery. However ignorant they were in metallurgy, they might follow the indications which nature preſented them, proceed from ſtep to ſtep, by little and little. They muſt have done ſo, ſince we ſee that they arrived at laſt at the art of forging iron. But this knowledge could not be obtained, but by the concurrence of a great many happy chances and favourable conjunctures which fall out but ſeldom. Subterraneous fires, the burning of foreſts, and all the other events which might have been the means of diſcovering the fabrication of gold, ſilver, and copper, would be of no ſervice with reſpect to iron. The hiſtory of Mexico and Peru affords us an evident proof of all this. Theſe nations had long poſſeſſed the art of working gold, ſilver, and copper, but had not the leaſt idea of iron [o], though it abounds in theſe countries [p].

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[m] Art de convertir le fer par M. de Réaumur, p. 2. & 390.—395.

[n] Réaumur, ibid. p. 2, 3.

All nations were originally in the ſame ſtate of ignorance. We have inconteſtable proofs of this, independent of the teſtimony of hiſtorians. A kind of ſtones commonly called *thunder-ſtones* [*], are ſtill preſerved in a great many cabinets. They have the ſhape of axes, plough-ſhares, hammers, mallets, or wedges [†]. For the moſt part they are of a ſubſtance like that of our gun-flints, ſo hard that no file can make the leaſt impreſſion upon them. We ought particularly to take notice, that they are almoſt all pierced with a round hole in the place moſt proper for receiving a handle; and this hole is made in ſuch a manner, that the handle being once forced in, will not come out again but with great difficulty, as it is with our hammers. It is evident from inſpection alone, that theſe ſtones have been thus wrought by the hands of men. The holes for inſerting the handles prove their deſtination, and the ſeveral uſes that were made of them [‡]. This is ſomething more than a mere conjecture.

It is well known, that tools of ſtone have been in uſe in America from time immemorial [q]. They are found in the tombs of the ancient inhabitants of Peru [r], and ſeveral nations uſe them at this day [ſ]. They ſhape and ſharpen them upon a kind of grindſtone, and, by length of time, labour, and patience, form them into any figure they pleaſe. They then fit them very dexterouſly with a handle, and uſe them nearly in the ſame manner we do our tools of iron [t]. Aſia [u] and Europe [x] are ſtrewed with theſe ſort of ſtones. They are frequently found. There muſt then have been a time, when the people of theſe countries were ignorant of the uſe of iron [y], as the people of America were before the arrival of the Europeans.

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[o] Alonſo Barba, t. 1. p. 111. & 118.; Hiſt. des Incas, t. 1. p. 103. t. 2. p. 61. & 319.; Acoſta, hiſt. nat. des Ind. fol. 132.; Voyag. au Pérou par D. Ant. d'Ulloa, t. 1. p. 386. & 391.; M. de l'acad. de Berlin, 1746, p. 451.

[p] Hiſt. des Incas, t. 2. p. 61.; Alonſo Barba, t. 1. p. 109. &c.; Hiſt. de la Virgin. p. 58. & 75.; N. Relat. de la France equinox, p. 19.; Lettr. édif. t. 11. p. 419. 420.

[*] In Latin *Ceraunia*.

[†] We may ſee the ſhape of them in Adrian Tollius, Hiſtor. gemmar. & lapid. l. 2. c. 261. p. 483.

[‡] Pliny ſeems to acknowledge this, when he ſays *ſimiles eas eſſe ſecuribus*, l. 37. ſect. 51.

[q] Mœurs des ſauvag. t. 2. p. 109. 110.; Hiſt. de la Virginie, p. 312. &c.; Lettr. édif. t. 20. p. 224. t. 25. p. 124.; Voyage de Damp. t. 1. p. 93.; Nouv. relat. de la France equinox. p. 152.

[r] Voyage au Pérou par D. Ant. d'Ulloa, t. 1. p. 384.; Voyage à l'équateur, par M. de la Condamine, p. 104.; Mém. de l'acad. de Berlin, 1746, p. 451.

Let us add to theſe evidences, the teſtimony of ancient authors. They are unanimous in declaring, that the firſt generations had little or no knowledge of iron, and that they were the lateſt in learning to work this of any metal. Anciently they employed copper for all the purpoſes for which we now make uſe of iron [z]. Arms, tools for huſbandry and the mechanic arts, were all of copper for many ages. The writings of Homer leave us no room to doubt of this. We ſee, that, at the time of the Trojan war, iron was very little uſed. Copper, in a word, ſupplied its place; and this metal was uſed both in making of arms [a], and all kinds of tools and utenſils [b]. It was the ſame for many ages amongſt the Romans [c]. Almoſt all the arms and tools of that people now extant, are of copper [d]. The moſt convincing proof, that the uſe of copper

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[ſ] Mœurs des ſauvages, t. 2. p. 111.; Aloyſ. Cadam. navigat. c. 66.

[t] Mœurs des ſauvag. t. 2. p. 110.; Lettr. édif. t. 20. p. 224.

[u] Carmania, a province of Perſia near Chaldea, is the place, according to Agricola, where they find moſt of theſe ſtones. De nat. foſſil. l. 5. c. 13. p. 262.

[x] Adrian. Tollius, *loco cit.* c. 262.; Journ. des ſcav. Decemb. 1751, p. 778.; Diari. Ital. D. B. de Montfaucon, c. 28. p. 440.; Mem. de Trévoux, Février 1713, p. 289. 290.

[y] See alſo l'hiſt. de Genghizcan par Petis de la Croix, p. 8.

[z] Heſiod. Theog. v. 722. 726. 733. Op. v. 150. 151.; Lucret. l. 5. v. 1286.; Varro *apud* Auguſt. de civ. Dei, l. 7. c. 24.; Schol. Apollon. ad l. 1. v. 430.; Iſidor. origin. l. 8. c. 11. p. 71. C. l. 16. c. 19. 20. l. 17. c. 2.

[a] Iliad. l. 4. v. 511. l. 13. v. 612. l. 23. v. 560. 561.; Odyſſ. l. 21. v. 423.; Héſiod. Théogen. v. 316.; Plut. in Theſ. p. 17. C.; Pauſ. l. 3. c. 3. p. 211.; Athen. l. 6. p. 232.

[b] Iliad. l. 5. v. 723. &c. l. 23. v. 118.; Odyſſ. l. 5. v. 244.

[c] Dionyſ. Halic. l. 4. p. 221.; T. Livius, l. 1. n. 43.

[d] See le Rec. d'antiquit. par M. le C. de Caylus, t. 1. p. 237. 238. & 261. 262.; Mém. de Trev. Septembre 1713, p. 1535. 1536. 1537.

preceded that of iron, is, that the ancients uſed braſs in all their religious ceremonies [e]. The Sabin prieſts cut their hair with a knife of braſs [f]. The high prieſt of Jupiter at Rome, made uſe of ſheers of copper for the ſame purpoſe [g]. When the Etruſcans had a mind to build a new city, they marked out its limits with a culter of braſs [h].

Further, this was not a practice peculiar to the Greeks or Romans; it was common to all the nations of antiquity. The arms of the Egyptians were commonly of braſs [i]. In the time of Agatharchides, they found chiſels and hammers of copper in the rubbiſh of old mines [k]. Job ſpeaks of bows of braſs [l]. The ſcriptures ſay, that when the Philiſtines had Samſon in their power, they bound him with fetters of braſs [m]. Herodotus aſſures us, that the Maſſagetæ had their axes, pikes, quivers, hatchets, and their very horſe-trappings, of this metal [n]. In England [o], Switzerland, Germany, but more eſpecially in the northern kingdoms [p], arms, rings, and other inſtruments of braſs, are often found in old tombs.

It was the ſame in America, the arms and tools of that part of the world were of copper [q]. Hatchets of this metal have been found in the ancient tombs of the Peruvians [r]. Theſe hatchets differ nothing from ours in ſhape *. In Japan, even at this day, all things which in other countries are made of iron, are there made of copper or braſs [ſ]. In a word, every thing proves, that no metal was ſo much uſed in ancient times as copper. Many reaſons contributed to this. Copper is found in great quantities, is eaſily taken from the mine, not difficult to ſmelt, and next to gold and ſilver, is the moſt ductile of all metals.

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[e] Schol. Theocrit. ad Idyll. 2. v. 36.; Macrob. Sat. l. 5. c. 19. p. 511. 512.; P. Feſtus, voce *Acieris*, p. 4.; Plut. in Theſ. p. 17. C.

[f] Macrob. Sat. l. 5. c. 19. p. 512.

[g] Serv. ad Æneid. l. 1. v. 448.

[h] Macrob. *loco cit.* p. 512.

[i] Diod. l. 1. p. 19.

[k] Apud Phot. p. 1341. & 1344.

[l] Chap. 20. v. 24.

[m] Judg. c. 16. v. 21. according to the Hebrew.

[n] L. 1. n. 215.

[o] Mem. de Trevoux, Février 1713, p. 288. 292. 295.

[p] Nouvell. litt. de la mer Baltique, ann. 1699, p. 88. ann. 1700, p. 14. 24. 333.; Journ. des ſcav. Decemb. 1751, p. 778.; Rudbek Atlant. part 3. c. 7. p. 145.; Scheuzer. phyſiq. ſacr. t. 6. p. 102.

[q] Acoſt. hiſt. nat. des Indes, l. 4. c. 3. fol. 132. *recto.*; Conq. du. Pérou, t. 1. p. 24. & 87.

[r] Voyag. au Pérou par D. Ant. d'Ulloa, t. 1. p. 384.; Mem. de l'acad. de Berlin, 1746, p. 451.; Mem. de Trev. Juillet 1703, p. 1115.; Rec. d'antiq. par M. le C. de Caylus, t. 1. p. 168.; Hiſt. des Incas, t. 2. p. 120.

* D. Ant. d'Ulloa. in his account of the figure, *loco cit.*

[ſ] Kæmpfer, hiſt. du Japon, t. 1. p. 74.

But copper is a ſoft metal and eaſily blunted. It would not therefore of itſelf be able to reſiſt the efforts which were neceſſary in ſeveral of the works in which it was employed. Some means muſt then have been found to harden it, before they could perform the ſame works with copper, which we perform at preſent with iron. Tempering was the means which it would ſeem the ancients moſt commonly uſed for this end. The firſt writers of antiquity aſſure us of this [t], and their teſtimony is confirmed by the examinations which have been made by artiſts on ſome Greek and Roman antiquities of copper [u]. We cannot even doubt of this after the inquiries and experiments which have been lately made by the Count de Caylus on the tempering of copper. By his operations he obtained a kind of copper, melted, forged, allayed, tempered extremely hard, ſuſceptible of the grindſtone, and, in one word, poſſeſſed of all the properties of iron [x]. Copper may be hardened alſo by mixing alloy with it. This operation was known to the ancient inhabitants of Peru. They uſed it to harden their tools and arms, which were all of copper [y].

In maintaining however that, originally, copper ſupplied the place of iron, I do not pretend to affirm that this laſt metal was altogether unknown in the ages we are now upon. Several teſtimonies give us reaſon to believe that ſome nations knew the art of working iron in very ancient times. There was a tradition among the Egyptians [z] that Vulcan had taught them to forge arms of iron. The Phœnicians alſo ranked among their moſt ancient heroes, two brothers, who were ſuppoſed to have diſcovered iron, and the manner of working it [a]. The Cretans, as Diodorus relates, placed both the diſcovery of iron, and the art of working it, in the moſt remote periods of their hiſtory [b]. The inhabitants of Mount Ida pretended to have learned the art of working this metal, from the mother of the gods [c]. In a word, Prometheus in Æſchylus boaſts of having taught mankind the fabrication of all metals [d]. Some authors aſcribe the diſcovery of the art of working iron, to the Cyclops [e], and ſome to the Chalybes [f], a very ancient people, renowned for their ſkill in working this metal [g]. The Chalybes inhabited the ſouth coaſts of the Euxine ſea, between Colchis and Paphlagonia *. Clemens Alexandrinus pretends that the art of making iron malleable was found out by the Noropes [h]. This nation was ſituated in Pannonia, along the banks of the Danube, between Noricum and Mœſia. Without entering into any diſcuſſion of theſe traditions, which are all liable to great difficulties and contradictions; it appears from the book of Job, that the art of working iron was known in ſome countries in the ages we are now ſpeaking of [i]. The books of Moſes alſo furniſh us with a very ſtrong proof of the antiquity of this diſcovery. From the manner in which this legiſlator ſpeaks of iron, it appears that metal muſt have been long in uſe in Egypt before his time. He celebrates the great hardneſs of it [k]; takes notice that the bedſtead of Og King of Baſhan was of iron [l]; he ſpeaks of mines of iron [m];

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[t] Tzetzes ad Heſiod. Op. & Dies, v. 150. p. 48.

[u] Rec. d'antiquit. par M. le C. de Caylus, p. 242. & 246.; Montfaucon diar. Ital. c. 5. p. 70. c. 12. p. 167.

[x] Caylus ibid. p. 242.

[y] Alonſo Barba, t. 1. p. 118.; Rec. d'antiquit. par M. le C. de Caylus, t. 1. p. 250. 251.

[z] Chron. Paſcal, p. 45. C.; Cedren. fol. 19. D. There is a manifeſt contradiction in Cedrenus. For after he has ſaid that Vulcan taught the Egyptians to forge arms of iron, he adds, that having obtained pincers, by his prayers, from heaven, he uſed them in working copper.

See alſo the paſſage of Agatarchide, *ſupra*, p. 158. note [k].

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[a] Sanchon. apud Euſeb. p. 35. C. [b] L. 5. p. 381.

[c] Sophocl. apud Strab. l. 10. p. 725.; Diod. l. 17. p. 726.; Auctor Phoronid. apud Schol. Apollon, ad l. 1. v. 1129.; Strabo, l. 10. p. 726. l. 14. p. 966.

[d] In Prometh, *vincto*, v. 501. [e] Plin. l. 7. ſect. 57. p. 414.

[f] Ammian. Marcell. l. 22, c. 8. p. 312.; Schol. Apollon. ad l. 2. v. 375.; Tzetzes, chil. 10. v. 338.

[g] Æſchyl. in Prometh. *vincto*. v. 113.; Virg. Georg. l, 1. v. 58.

* See Martiniere's dictionary, *voce* Chalybes, art. 3. and Danville's map of the retreat of the ten thouſand.

[h] Strom. l. 1. p. 365.

[i] Chap. 19. v. 24. c. 20. v. 24. c. 28. v. 2. c. 40. v. 13. c. 41. v. 18.

[k] Levit. c. 26. v. 19.; Deut. c. 28. v. 23. & 48.

[l] Deut. c. 3. v. 11. [m] Ibid. c. 8. v. 9.

he compares the ſeverity of the ſervitude of the Iſraelites in Egypt, to the heat of a furnace for melting that metal [n]. But what is moſt worthy of our attention is, that they then made ſwords [o], knives [p], axes [q], and tools for cutting ſtones [r], of iron. To make the blades of ſwords and knives, they muſt have known the arts of tempering and turning iron into ſteel. Theſe facts ſeem to me ſufficient to prove that the diſcovery of iron, and the arts of working it, were extremely ancient in Egypt and Paleſtine.

But at the ſame time that we acknowledge the antiquity of working iron in ſome few places, we muſt confeſs that in theſe ages the uſe of it was neither very common, nor very much diffuſed. All antiquity is unanimous in declaring, that all nations we know any thing of, once uſed copper in the place of iron, and that this practice ſubſiſted many ages, in ſome very enlightened and civilized countries. It may not be improper to take notice, that we do not find that Moſes made uſe of iron in any part of the tabernacle in the wilderneſs, or Solomon in any part of the temple at Jeruſalem.

Having thus ſpoke of thoſe arts which were invented through neceſſity, we muſt now proceed to ſay ſomething of thoſe which owed their birth to leiſure and luxury, the fruits of that abundance which is produced by agriculture. The number of theſe laſt are more conſiderable in this period than we could have imagined. Some of the firſt nations knew the arts of deſigning, of caſting metals, and of ingraving. They had alſo ſome notions of ſculpture, and ſeveral other arts. The magnificence which reigned in ſome countries a few ages after the flood, neceſſarily ſuppoſes the knowledge of theſe arts. In general, I muſt take notice, that, in the courſe of my reſearches, I have all along obſerved with aſtoniſhment, that the merely pleaſing arts have been as ancient in their origin, as thoſe of the moſt indiſpenſable neceſſity. Jubal, the inventor of muſical inſtruments, was brother to Tubal-cain the inventor of metallurgy [ſ]. I ſhall confine myſelf at preſent to ſpeak of the origin

[n] Deut. c. 4. v. 20.

[o] Num. c. 35. v. 16.

[p] Levit. c. 1. v. 17.

[q] Deut. c. 19. v. 5.

[r] Ibid. c. 27. v. 5.

[ſ] Gen. c. 4. v. 21. 22.

of deſigning, of the goldſmiths and ſculptors arts. Muſic, and ſome other arts, will be conſidered in that article, wherein we deſign to treat of the manners and cuſtoms of thoſe ages which are the ſubject of this firſt part of our work.

C H A P. V.

Of the origin of deſigning, ingraving, of goldſmiths work, and ſculpture.

IT would be equally difficult and unprofitable, to ranſack the ſhades of antiquity, to find the preciſe origin of the arts of deſigning, of caſting and ingraving metals, of carving wood, ſtone, &c. Nothing can be ſaid with certainty of the origin and firſt improvements of theſe arts, but that they are extremely ancient. Man is born an imitator: we may obſerve in all nations a ſtrong inclination to copy the objects which are before them. Even the greateſt ſavages, who have the leaſt connection and intercourſe with the civilized part of mankind, have ſome idea of the art of deſigning, that is, of imitating (rudely enough indeed) the natural objects with which they are ſurrounded [t].

The ſhadows of bodies ſuggeſted the firſt idea of deſigning. Some perſon who had either more acuteneſs or more leiſure than others, ſtopping to conſider this effect, it came into his head, to trace the outlines of one of theſe ſhadows exactly, with ſome inſtrument or other. When the ſhadow had vaniſhed, he obſerved that theſe outlines bore a reſemblance to the real object [u] which had produced the ſhadow.

What chance had thus diſcovered, was ſoon formed into a regular art. After ſome time, they would attempt to repreſent objects without the aſſiſtance of their ſhadows, and by a little practice, the eye alone would guide the hand in copying the proportions and likeneſſes. Deſigning at firſt was quite imperfect, and conſiſted only in drawing the outlines of bodies. By and by the artiſts began to endeavour to repreſent the inner parts which were not diſtinguiſhed by the ſhadow, ſuch for example (if it was a head) as the eyes, noſe, mouth, &c. As they had learned from the ſhadow to repreſent the outlines of bodies, they would ſee the neceſſity of attempting to repreſent the inner parts; and they would ſucceed in this attempt, by diſpoſing the figures of theſe parts properly within the outlines [x].

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[t] Voyage de J. de Lery, p. 277. ; Leſcarbot, hiſt. de la Nouv. Franc. p. 692. ; Mœurs des ſauvages, t. 2. p. 44.

[u] Acad. des inſcript. t. 19. p. 252.

Coals, chalk, &c. would furniſh men at firſt with inſtruments for drawing upon wood, ſtone, &c. They would practiſe too upon ſand, clay, and other ſoft bodies. By and by they would endeavour to ingrave upon harder ſubſtances, which might retain the figures, with flints, and other ſharp inſtruments. The ſhape which ſoft bodies aſſume when put into harder, and the impreſſion which hard bodies leave upon the ſoft, would ſoon ſuggeſt the hint of caſting in moulds, and making impreſſions. In a word, theſe rough draughts of ſculpture, which nature ſo often exhibits to the view, would give them the idea of carving in wood, ſtone, &c. Thus began the arts of the ingraver, carver, goldſmith, and ſculptor; arts which, I imagine, preceded that of painting.

The firſt men might acquire pretty ſoon the knowledge of ſome of theſe arts. They might learn to ingrave on wood and ſtone, and even to carve and cut theſe into figures, before they knew the art of working metals. The example of ſeveral ſavage nations confirms this conjecture. The people who inhabit the banks of the great river of the Amazons, have ſome notions of ſculpture, though they are quite unacquainted with the uſe of metals [y]. It is the ſame in ſeveral other countries [z]. Every thing therefore inclines us to think, that thoſe arts of which we are treating in this chapter, had their origin in the remoteſt ages. It only now remains to propoſe ſome conjectures on their gradual improvement, and to examine to what degree of perfection they might have attained in the ages we are now examining.

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[x] Acad. des inſcript. t. 19. p. 252.

[y] Relat. de la riviere des Amazones par le P. d'Acugna, t. 3. p. 104. 105.

[z] N. relat. de la France equinox, p. 140.; Laet, hiſt. des Ind. Occid. l. 2. c. 16. p. 57.

After that of drawing upon flat ſurfaces, the art of caſting in moulds, I imagine, was next practiſed. It was ſufficient to give men a hint of this, to obſerve the ſhapes aſſumed by ſoft ſubſtances, when they happened to fall into the cavities of more compact and ſolid bodies. The ſame thing would give them an idea of moulds; and they would follow the examples ſet them by nature. They would ſearch for earth of ſuch a nature, that, though it were ſolid, might be eaſily ſoftened and kneaded. The ſavages are not ignorant of this art of moulding [a].

At firſt they would mould only clay, plaiſter, &c. but ingenious and induſtrious nations would not continue long to uſe only ſuch brittle materials for theſe kind of works. The deſire of rendering their productions more ſolid and durable, would put them upon contriving how to make them of metals. We ſee this by the preſent Eliezer made to Rebecca. It conſiſted of ear-rings and veſſels of gold and ſilver [b]. It even appears, that theſe kind of jewels were then pretty common in ſome parts of Aſia. Moſes ſays, that Jacob made the perſons of his houſehold give him up all their ear-rings [c]. Judah gave his ſignet and his ring to Tamar in pledge [d]. The uſe of ſuch things was equally ancient in Egypt. Pharaoh, in raiſing Joſeph to the dignity of his prime miniſter, gave him his ring, and put a gold chain about his neck [e]. We know alſo that this patriarch commonly uſed a ſilver cup [f]. We may join to theſe teſtimonies of ſacred hiſtory, that of profane authors. We ſee from their writings, that the art of working gold and ſilver was practiſed in Aſia [g] and Egypt [h] in the moſt remote ages.

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[a] N. Relat. de la France equinox, p. 140.; Leſcarbot, hiſt. de la N. France, p. 777.

[b] Gen. c. 24. v. 22. & 53.

[c] Ibid. c. 35. v. 4.

[d] Gen. c. 38. v. 18. It is probable this ring was ingraved. The Hebrew word חתם *Khtham*, ſignifies a ſignet. Now, a ſignet muſt have ſome diſtinctive mark or ingraving. See les mem. de Trev. Sept. 1750, p. 2051.

[e] Gen. c. 41. v. 42. See below, b. 6. chap. 2.

[f] Gen. c. 44. v. 2.

By inſenſible degrees, the art of caſting would give birth to that of ſculpture in wood, ſtone, and marble. This operation is an imitation of nature, which frequently preſents us with a rough kind of ſculpture. Beſides, the figures in this art bear an exact reſemblance to the real objects we converſe with. The firſt attempts in ſculpture were probably in clay. Men would begin by employing the materials in moſt common uſe. The neceſſity of procuring themſelves veſſels, had taught men to work earth and clay, They would naturally uſe theſe alſo in their works of imitation. There was no need of many tools to execute ſuch kind of works. It is with the hand they form them, and the fingers are of more uſe than all other tools. Three or four pieces of wood at moſt are ſufficient to finiſh ſuch works [i]. The plainneſs of this practice, made Paſiteles [k], a famous ſtatuary of antiquity, ſay, "That "the invention of modelling clay into figures, had given birth "to the art of making ſtatues of marble and bronze." Originally in all nations the ſtatues of their gods were only of moulded clay.

The tranſition from figures of clay, to thoſe of wood and ſtone, muſt have been ſomewhat difficult; yet it appears that mankind were not long in making this tranſition. The worſhip of idols is extremely ancient [l]. It was ſpread over all Aſia and Egypt, in the days of Abraham [m] and Jacob [n]. Idolatry, no doubt, contributed much to the improvement of ſculpture. For though the repreſentations of the objects of public adoration were at firſt coarſe, and ill performed, yet civilized nations would ſoon learn to make the images of their gods in a more artificial and elegant manner. The Teraphim which Rachel ſtole from her father Laban [o], were, according to the beſt interpreters, little images in human ſhape. Many other things prove the great antiquity of ſculpture in

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[g] Diod. l. 2. p. 122. 123.; Plin. l. 31. ſect. 15. p. 614.

[h] Diod. l. 1. p. 19.

[i] Felibien, principes d'architect. l. 2. c. 1.

[k] Plin. l. 35. ſect. 45. p. 711.

[l] Joſhua, c. 24. v. 14.

[m] Id. ibid.

[n] Gen. c. 31. v. 19. c. 35. v. 2. & 4.

[o] Gen. c. 31, v. 19. & 30.

Aſia and Egypt. Not to mention the teſtimonies of profane authors [p], God forbade his own people to make unto themſelves graven images [q], or gods of ſilver, or gods of gold [r]. He commanded them alſo to break all the images of the gods which the Canaanites worſhipped [ſ]. Moſes ſpeaking to the Iſraelites in the wilderneſs, ſays, "For ye know how ye have "dwelt in the land of Egypt, and how ye came through the "nations which ye paſſed by. And ye have ſeen their abo"minations and their idols, wood and ſtone, ſilver and "gold [t]." This text proves that theſe nations had long been in poſſeſſion of the arts of carving and ſculpture. I might ſpeak too of the golden calf, which was made after models the Iſraelites had ſeen in Egypt. But I imagine I have ſufficiently proved that ſculpture had its origin in the moſt remote antiquity.

This art muſt have been very imperfect in theſe firſt ages. Sculpture requires the knowledge of ſo many other arts, that we have reaſon to think its beginnings were very coarſe, even among thoſe people who afterwards excelled in it the moſt. We have no means of judging of the productions of the firſt nations. We may however form ſome idea of them, from what ancient writers ſay of the firſt attempts in ſculpture among the Greeks, who had learned that art from the Egyptians [u]. Their ſtatues originally were little better than ſhapeleſs blocks. A long time after, their knowledge reached no further than to make coarſe figures, with their arms hanging ſtraight down, and faſtened to their bodies. Their legs joined together, without expreſſion, attitude, or elegance [x]. We know too that the famous ſtatue of Memnon, ſo much admired in Egypt, was in this taſte [y]. Such probably were the firſt eſſays in ſculpture, in all countries.

If we could give credit to what certain authors ſay of the works executed by Semiramis, we ſhould be obliged to acknowledge that theſe firſt ages were much more intelligent than we have repreſented them. This princeſs, ſay they, cauſed the images of all kinds of animals to be made in relievo on the walls of her palace, which being afterwards coloured according to nature, ſeemed to be alive. Theſe figures were more than four cubits high. In the middle appeared Semiramis piercing a tyger with her dart, and near her, Ninias ſlaying a lion with his lance. In another part of the ſame palace, the ſtatues of Jupiter, Belus, Ninus, Semiramis, and of all the principal officers of ſtate, were erected. Theſe ſtatues, ſay they, were all of bronze [z].

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[p] See Sanchoniat. apud Euſeb. l. 1. p. 39.; Herod. l. 2. n. 4. 143. 149.; Diod. l. 1. p. 19. & 62; l. 2. p. 122. 123.

[q] Exod. c. 20. v. 4.

[r] Ibid. v. 24.

[ſ] Exod. c. 23. v. 24.

[t] Deut. c. 29. v. 16. 17.

[u] See Diod. l. 1. p. 109.

[x] See part 2. b. 2. ſect. 2.

[y] Philoſtrat. de vita Apollon. l. 6. c. 4. p. 233. & 234.

They add further, that three ſtatues of maſſy gold, repreſenting Jupiter, Juno, and Rhea, had been placed on the ſummit of a temple, built in the midſt of Babylon, by the orders of that princeſs. Jupiter was upright, and in the attitude of walking; this ſtatue was 40 feet high. Rhea was ſeated in a chariot of gold, before her two lions, and at her ſide two enormous dragons of ſilver. Juno was ſtanding on her right hand; ſhe held a ſerpent by the head, and in her left, a ſceptre adorned with precious ſtones. Before theſe three ſtatues was placed a table of gold, forty feet long and fifteen broad. On this table were ſet two urns, two pots for perfumes, and three cups of gold, each of an enormous weight [a].

Theſe works, however grand they may appear, deſerve but little attention, in compariſon of thoſe, which, they tell us, this great Queen cauſed to be performed on Mount Bagiſthan. This mountain on one ſide preſented a ragged rock, ſixteen furlongs in perpendicular height *, full of inequalities. Semiramis began by ordering it to be made ſmooth; and afterwards ſhe cauſed her own figure, attended by one hundred of her guards, to be cut upon it [b].

We ſhould be obliged to acknowledge, that ſculpture had made very great progreſs in theſe firſt ages, if the facts I have now mentioned were well atteſted. But I am very far from thinking they are ſo. They appear to me more than doubtful.

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[z] Diod. l. 2. p. 121. 122. [a] Diod. l. 2. p. 123.

* That is, $\frac{3}{4}$ of a league, allowing 24 ſtadia to a league, and 125 paces to a ſtadium.

[b] Diod. l. 2. p. 126. 127.

We cannot but obſerve, that a ſtrain of exaggeration runs through the whole narration, and gives it the air of a fable. We may even remark, that Diodorus [c] and Strabo [d], who declare that many monuments attributed to Semiramis ſtill exiſted in their time, ſuch as magnificent highways, bridges, canals, aqueducts, &c. make no mention of the marvellous works at Mount Bagiſthan. What Diodorus, the only ancient author who ſpeaks of them, relates, is only upon the authority of Cteſias, and every one knows how much the credit of Cteſias has been ſuſpected. In a word, there is no mention of theſe works in an ancient inſcription to the honour of this princeſs, which has been preſerved by Polienus [e]. In this we find a pretty long detail of the works performed by Semiramis; would a work ſo extraordinary, ſo incredible, as this of carving a large mountain, have been left out of the liſt * ?

It is true, Father Martini relates, that there is a mountain in China, cut into a ſtatue of ſuch prodigious bigneſs, that you may diſtinguiſh its noſe and eyes at the diſtance of ſome miles [f]. Father Kircher ſpeaks alſo of two other mountains in that country, the one of which has the ſhape of a dragon, and the other of a tyger [g].

From theſe facts, it might be concluded, that the works ſaid to have been performed by Semiramis at Mount Bagiſthan, might have exiſted, ſince works equal, if not ſuperior to them, are to be ſeen in China. But, in my opinion, all theſe relations are equally falſe. But, though the reality of ſuch works ſhould be admitted, it might ſtill be doubted, whether they had been executed in the ages we are now examining. It is well known there were ſeveral queens of Aſſyria named Semiramis [h]. Theſe authors have attributed to the great Semiramis, the ſpouſe of Ninus, what was perhaps performed in another age, and by ſome other princeſs [i]. This confuſion of names probably occaſioned the error I am now refuting; an error which it is likely gained ground from that natural fondneſs for the marvellous ſo peculiar to the Greeks, and which their beſt writers can hardly guard againſt.

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[c] L. 2. p. 126. 127. [d] L. 16. p. 1071. [e] Stratag. l. 8. c. 26.

* The ruins of Perſepolis may perhaps be mentioned as an exception to this. But there appears nothing in them comparable to the works of Semiramis, as deſcribed by Diodorus.

[f] Atlas Sin. p. 69. [g] China illuſtr. l. 4. c. 4. p. 231.

[h] See Cedren, p. 15.; Conon. ap. Phot. n. 9. p. 428.; Euſeb. chron. l. 2. p. 80.

I ſhall ſay nothing of painting at preſent. I am perſuaded, that art, in the ſenſe we now underſtand the word, had no exiſtence in the ages we are now upon. They might poſſibly ſcrawl with colours ſome groteſque figures without rule, or method, as the ſavages do at preſent [k]. But what may properly be called the art of painting, was not then known. We ſhall, however, leave the critical diſcuſſion of this point to the ſecond part of our work.

Deſigning, and its kindred arts, ſerve at preſent merely for amuſement. But at their origin, deſigning, ingraving, &c. anſwered more neceſſary and important purpoſes. They were the only means which mankind then knew of recording their thoughts, and tranſmitting their knowledge to poſterity. Drawing for a long time ſupplied the place of letters, which we uſe at preſent. We ſhall illuſtrate this matter a little, and finiſh what we had to ſay concerning the arts in this period, by the diſcovery of writing.

CHAP. VI.

Of the origin and progreſs of Writing to the year 1690 *before Jeſus Chriſt.*

Mankind in all ages and in all countries, have endeavoured to find out methods of preſerving the memory of ſuch events and diſcoveries as they imagined would be intereſting to poſterity. But it was a long time before the art of writing, that is, of painting words, and ſpeaking to the eyes, was found out. A good many different expedients were ſucceſſively employed, to preſerve the remembrance of important facts. It was the practice of the primitive times, to plant a grove, to raiſe an altar, or heap of ſtones, to inſtitute games and feſtivals, and to compoſe a kind of ſongs on occaſion of memorable events. The place alſo where any remarkable ſcene had been acted, commonly received a name commemorative of that event and its circumſtances.

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[i] See Beroſ. *apud* Joſ. in Appion, l. 1. c. 6.; Euſeb. chron. l. 2. p. 80.

[k] Voyage de J. de Lery, p. 277.; Mœurs des ſauvages, t. 2. p. 44.

The hiſtories of all nations furniſh a number of proofs and examples of theſe primitive practices. We ſee the patriarchs raiſing altars in the places where the Lord had appeared to them, planting groves, ſetting up monuments in memory of the principal events of their lives, and giving ſuch names to the places where they happened, as might recall the remembrance of them [l]. Profane authors mention cuſtoms of the ſame kind [m]. From the fragment of Sanchoniatho, we learn, that rough ſtones and poſts were the firſt memorials of the Phœnicians [n]. Great heaps of ſtones were formerly to be ſeen near Cadiz, which were ſaid to be the monuments of Hercules's expedition into Spain [o]. The ancient inhabitants of the North preſerved the remembrance of great events, by ſetting up ſtones of a prodigious bigneſs in particular places [p]. This is ſtill the moſt common method of the ſavages of America, who are ſtrangers to the art of writing [q]. The negroes, who are equally ignorant of this art, have invented certain ſymbolical marks, which ſupply the place of inſcriptions. For example, they place arrows over the graves of men, mortars and peſtles over the graves of women [r]. The cuſtom of giving names to places relative to the events which have happened in them, is found amongſt the nations of America [ſ].

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[l] Gen. c. 12. v. 9. c. 26. v. 25. c. 35. v. 7. c. 21. v. 31. & 33. c. 26. v. 20. &c.

[m] See Diod. l. 4. p. 259. & 267.; Strabo, l. 3. p. 259. & 260. &c.

[n] See Fourmont, reflex. critiques ſur les hiſt. des anc. peuples, l. 2. p. 7.

[o] Strabo, l. 3. p. 202.

[p] Bibl. anc. & mod. t. 2. p. 248.

[q] Journ. des ſcav. Mars 1681, p. 46.; Voyage à la baye d'Hudſon, t. 2. p. 151.

[r] Hiſt. gen. des voyages, t. 2. p. 468.

[ſ] Hiſt. des Incas, t. 1. p. 19. 214. 338.

The inſtitution of feſtivals in ancient times had two objects, the honour of the gods, and the perpetuating the memory of important events. If we peruſe the calendars of ancient nations, we ſhall find, that all their feſtivals had been inſtituted with a reference to ſome paſſages in their hiſtories. The ſacred books furniſh many examples of this [t], to ſay nothing of profane hiſtorians.

Some other practices which prevailed in certain countries, muſt be reckoned amongſt the means which were anciently employed, to preſerve the memory of events and diſcoveries. The Chineſe before the reign of Fo-hi, that is, in the moſt ancient ages, made uſe of ſmall cords with a certain number of knots, which, by their different diſtances and combinations, not only enabled that people to recall the remembrance of their own ideas, but alſo to communicate their thoughts to others [u].

The Peruvians knew no other way of writing but this. Cords of various colours, with a certain number of knots upon them, ſmaller or greater, and differently combined, formed regiſters which contained the annals of their empire, the ſtate of their public revenues, the rolls of their taxes, and their aſtronomical obſervations, &c. [x]. The negroes of Juida make uſe of this method at preſent [y]. We may add to theſe practices, that of thoſe people who ſupplied their want of writing, by ſmall pieces of wood differently notched, which ſerve them for authenticating their legal deeds and contracts. I have mentioned this practice in the article of government [z]; it ſtill ſubſiſts in Albania [a], and Siberia [b]. The tallies of wood which are at preſent uſed by our bakers, are a faithful repreſentation of theſe rude contrivances.

But the compoſing of little poems or ſongs, was the method moſt univerſally uſed in the firſt ages, for preſerving the memory of paſt events. Theſe poems contained the principal circumſtances of the events they deſigned to tranſmit to poſterity[c]. We ſee this practice eſtabliſhed in the remoteſt ages, and amongſt all nations of both continents, as the Egyptians[d], Phœnicians[e], Arabians[f], Chineſe[g], Gauls[h], Greeks[i], Mexicans[k], and the people of Peru[l].

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[t] Exod. c. 12. v. 26. 27. See Calmet, t. 2. p. 130.

[u] Martini hiſt. de la Chine, l. 1. p. 21.

[x] Hiſt. des Incas, t. 2. p. 27. & 35.; Conquête du Perou, t. 1. p. 22.; Acoſta, hiſt. des Indes, l. 6. c. 8. fol. 285.

[y] Hiſt. gen. des voyag. t. 4. p. 373. & 391.

[z] Book 1. cap. 1. art. 1. p. 28.

[a] D'Herbelot, bib. orient. *voce* Arnauth, p. 129.

[b] Rec. des voyag. au Nord, t. 8. p. 402.

We find ſuch hiſtorical ſongs amongſt the moſt barbarous and ſavage nations. The ancient inhabitants of the North[m], of Brazil[n], Iceland[o], Greenland[p], Virginia[q], St Domingo[r], and Canada[ſ], had preſerved, in poems of this kind, ſuch events as they thought worthy of the knowledge of poſterity. They ſung them at their public feſtivals and ſolemnities. I have already ſhown in the article of government, that the firſt legiſlators promulgated and tranſmitted their laws by forming them into odes or ſongs[t].

All theſe different practices were employed in primitive times, to perpetuate the memory of great events, and the knowledge of important diſcoveries. Tradition then ſupplied the place of writing, fathers explained to their children the motives of ſuch practices and inſtitutions, and informed them of the events which had occaſioned them*.

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[c] See Strabo, l. 1. p. 34. [d] Clem. Alex. ſtrom. l. 6. p. 757.

[e] Sanchoniat. *apud.* Euſeb. l. 1. p. 38. A.

[f] Job c. 36. v. 24. [g] Lettr. édif. t. 19. p. 477.

[h] Tacit. de mor. Germ. n. 2.; Biblioth. univer. t. 6. p. 299.

[i] Acad. des inſcript. t. 6. p. 165.; Tacit. annal. l. 4. n. 43.

[k] Theod. de Bry. rer. Americ. t. 2. part 4. p. 123.

[l] Hiſt. des Incas, t. 1. p. 321. t. 2. p. 56. 57. & 145.

I am informed that the Peruvians have a famous ode, which contains the hiſtory of the creation, according to their divinity, which they often ſing.

[m] Bibl. univ. t. 15. p. 380. & 389. &c. Bibl. Anc. & mod. t. 2. p. 241.; M. de Trev. Juin 1703, p. 949. 950. Decem. 1719. p. 125.

[n] Voyage de Coréal, t. 1. p. 199. & 203.; Voyage de J. de Lery, p. 248.

[o] Bibl. ancien. & modern. t. 2. p. 241.

[p] Hiſt. nat. de l'Iſlande, t. 2. p. 232. [q] Journ. des ſcav. Mars 1681, p. 46.

[r] Hiſt. gen. des voyages, t. 12. p. 219. [ſ] Mœurs des ſauvages, t. 1. p. 519.

[t] Book 1. chap. 1. art. 1. p. 28. 29.

The uſe of hiſtorical ſongs continued after the invention of writing. Moſes compoſed one after the paſſage of the Red ſea to commemorate that event. He has preſerved one which the Canaanites made on the victory of their king Sihon over the Moabites. Num. c. 21. v. 26.

* The ſcripture furniſhes us a very direct example of theſe practices. See Exod. c. 12. v. 26. c. 13. v. 8. Joſh. c. 4. See alſo Diod. l. 5. p. 388.; L'hiſt. de Gengizcan par Petis de la Croix, p. 8.

I have obſerved already in the article of government, that it was the cuſtom of theſe primitive times, to tranſact before witneſſes the ordinary affairs of civil life, ſuch as ſales, purchaſes, payments, obligations, &c.[u].

Theſe practices which I have mentioned, were ſufficient for theſe firſt ages. Nations were not then populous; they had but few neceſſities, few arts, and little commerce; conſequently their ideas and languages could not be very copious. As mankind grew more numerous, their knowledge and their buſineſs increaſed; and it became neceſſary to invent more preciſe and commodious methods of atteſting facts, than thoſe which I have mentioned. Different ſigns have ſucceſſively been contrived to paint thoughts and repreſent diſcourſe. It is by the continued reſearches and repeated eſſays of the civilized part of mankind in different ages, that the art of writing, properly ſo called, has at laſt been found out. But it is impoſſible to fix the preciſe epocha, or point out with certainty the origin of this art. Theſe queſtions have been agitated by an infinite number of critics, both ancient and modern[x]. To examine their different ſentiments, would lead us into endleſs diſquiſitions. I ſhall only repreſent in a few words, the opinion which ſeems to me the moſt probable.

Man enjoys the ſingular advantage of being able to communicate his ideas by articulate ſounds. But theſe ſounds do not reach beyond the time and place where they are pronounced. It was neceſſary then to find out ſome method of giving extent and duration to ſounds, in order to diffuſe and perpetuate our ideas. The only way of doing this was by inventing ſigns and figures to repreſent and preſerve words. It is impoſſible to form a juſt and clear conception of the manner by which mankind arrived at the art of writing, otherwiſe than by carefully tracing the ſucceſſive gradations of this art. In this progreſs we may plainly perceive ſeveral different epochas and diſtinct ſteps of improvement.

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[u] *Supra*, b. 1. c. 1. p. 27.

See Pliny, l. 7. p. 412.

It muſt be owned, that what we read in Pliny about the invention of alphabetical characters, is full of contradictions. There is no ſtrength nor connection in his reaſonings. It is evident the text of this author has been corrupted in this place. I ſhall ſay more of this in the article of aſtronomy.

The firſt attempt towards writing, taking that term in its utmoſt extent, was the repreſentation of material objects. I have obſerved in the preceding chapter, that in all ages, and in all countries, mankind have endeavoured to imitate and copy the ſeveral objects which nature preſented to their view. The origin of deſigning is almoſt as ancient as that of mankind. The idea of it, if we may ſo ſpeak, ſeems to be innate. It was natural for the firſt men to think of employing this art, to make their thoughts viſible; they began by drawing a repreſentation of the objects of them. To write, for example, that one man had killed another, they drew the figure of one man ſtretched upon the ground, and of another ſtanding by him upright, with ſome inſtrument of death in his hand. To let you know that ſomebody had arrived in a country by ſea, they drew the repreſentation of a man ſitting in a ſhip; and ſo of other things.

We may be aſſured from ſeveral monuments of antiquity ſtill ſubſiſting, that the art of writing originally conſiſted in a clumſy repreſentation of corporeal objects. This kind of writing, improperly ſo called, was the firſt the Egyptians uſed. They began by deſigning [y]. We have reaſon to think the Phœnicians at firſt knew no other method [z]. Thoſe who have wrote beſt on the hiſtory and arts of the Chineſe, have ſhewn clearly that the modern Chineſe characters are derived from this primitive practice of drawing ſuch objects as were capable of it [a]. I ſuſpect that it was the ſame originally among the Greeks, becauſe in their language the ſame word ſignifies to *paint* and to *write* *.

The hiſtory of the Mexicans furniſhes us with a more direct example of theſe firſt eſſays towards the art of writing. When the Spaniards arrived in Mexico, the inhabitants of the ſea-coaſts gave advice of it to their Emperor Montezuma, by ſending him a large cloth in which they had carefully drawn and painted every thing which they had ſeen [b]. This was the only method theſe people had of writing their laws and their hiſtory.

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[y] Eſſai ſur les hieroglyphes des Egyptiens, p. 28. 46. 114. 115. & 135.

[z] Ibid. p. 26. &c. [a] Ibid. p. 35. &c.

* Γϱαφεῖν.

[b] Acoſta, l. 7. c. 24.; Conq. du Mexiq. l. 2. c. 1. p. 162. 163.

There is ſtill exiſting a very curious fragment of this hiſtorical painting, which a Mexican explained to the Spaniards, after their conqueſt of that empire[c]. The ſavages preſent us daily with models of this primitive manner of writing[d], and communicating their thoughts.

It would be quite ſuperfluous to inſiſt on the difficulty and inconvenience of this practice. How much time and pains were neceſſary to write the leaſt fact, or the ſhorteſt diſcourſe? Men contrived to abridge theſe ſigns, and inſtead of drawing a man, a horſe, a tree, &c. at full length, they only drew ſome of their diſtinguiſhing parts. By this means they ſhortened the time, and diminiſhed the enormous bulk of their volumes. We have ſtill left ſome traces of this ſhorter way of painting in the writings of Hor-Apollo[e]. That author ſays, that anciently the Egyptians repreſented a fuller of cloths, by painting a man's two feet in water; and that to write fire, they painted ſmoke riſing in the air[f].

This abridged painting was the ſecond ſtep towards a more commodious method of repreſenting thoughts and words. But it ſtill betrays the great ignorance of theſe ancient times, and proves the original cuſtom of painting the object of their diſcourſe.

The neceſſity of writing much, and upon various ſubjects, ſoon diſcovered that the painting of objects was not ſufficient alone to expreſs a great many of the ideas which we might incline to communicate. There are in fact a great many things which cannot be expreſſed by this means, ſuch as word, the changes of relations and qualities, and eſpecially the paſſions and ſentiments of living creatures. It became neceſſary, therefore, to make ſome improvements and additions to their former practices of painting objects. They began by adding to theſe paintings, certain marks and ſtrokes, which, by common conſent and agreement, ſerved to ſignify actions, paſſions, &c. These marks, though they had no relation to the ſounds which men uttered in expreſſing their ideas *, yet, by their various diſpoſitions and combinations, anſwered much the ſame purpoſes with our letters. Such were probably the ſucceſſive ſteps and improvements in the art of writing.

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[c] See l'Eſſai ſur les hierogl. des Egypt. p. 18.

[d] See Lettr. édif. t. 17. p. 303. 304.; Voyage de la Hontan, t. 2. p. 193.; Conq. du Perou, t. 1. p. 21.; Voyage à la baye d'Hudſon, t. 2. p. 271. 272.; Mœurs des ſauvages, t. 2. p. 43. 44.

[e] L. 1. c. 65. [f] L. 2. c. 16.

After this, ſome acute and ingenious nations invented more artificial methods, though ſtill very imperfect and inconvenient. The moſt celebrated of theſe was that of hieroglyphics, of which the Egyptians are eſteemed the inventors. In this method of writing, one figure repreſented many things. A ſcaling-ladder, for example, repreſented a ſiege[g]. Two hands, the one holding a buckler, the other a bow, ſignified a battle[h]. By this means the art of writing, which originally was only painting, became a mixture of paintings and ſymbols; the marks which they uſed ſignifying ſomething more than the ſimple repreſentations of objects could do.

This new manner of writing made great progreſs, and received many improvements. There were various ways of uſing it. We perceive plainly by the different methods which we know were uſed, ſome more ſome leſs artificial, that theſe methods were invented by degrees, and at different times. This manner of writing was very univerſal. We find it amongſt the Egyptians, Phœnicians, Chineſe, and Mexican[i], and where-ever we can trace the firſt progreſs of arts. The manner of practiſing it, indeed, in all theſe different nations was not perfectly the ſame, and yet all their various methods evidently flowed from one ſource, *viz.* the primitive practice of painting the objects of thought. It is highly worthy of our attentive obſervation, that not only the Chineſe in the eaſt, the Mexicans in the weſt, the Egyptians in the ſouth, but alſo the Scythians[k] in the north, the Indians, Phœnicians[l], Æthiopians,

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* See the figures upon obeliſks, and the Mexican paintings, in Thevenot, t. 2.

[g] Hor. Apollo. l. 2. c. 28.

[h] Ibid. c. 5.

[i] Eſſai ſur les hieroglyph. p. 26. 30 37. 38.

[k] Ibid. p. 47.

[l] Diod. l. 3. p. 176.; Voyage de V. le Blanc, part 2. p. 25.

Etruſcans [m], the ſavages in Africa [n] and America [o], have all uſed the ſame manner of writing, by drawings and hieroglyphics. Such an univerſal concurrence cannot be conſidered as the effect of accident or imitation; we muſt diſcern in it the voice of nature ſpeaking in an uniform tone to the groſs capacities of the firſt generations of men *.

But after hieroglyphic writing was carried to the higheſt perfection it was capable of, there ſtill remained one great and laſt effort to be made, to find out characters proper for repreſenting words independent of objects. There have been in all ages ſome happy and inventive ſpirits, raiſed up by providence for the improvement and increaſe of human knowledge. Some of theſe took notice of the great imperfection of all the methods which had been uſed to render our thoughts viſible and permanent. They perceived the inconvenience of that way of writing, which conſtantly excited double ideas in the mind, by a confuſed mixture of words and objects. They took notice further, that the articulate ſounds formed by the voice in ſpeaking, were not very numerous. They endeavoured, therefore, to repreſent theſe articulate ſounds by an equal number of ſigns. By this means they propoſed to paint words by ſigns,

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[m] Eſſai ſur les hieroglyph. p. 46.

[n] Hiſt. gen. des voyag. t. [o] Lettr. édif. t. 17. p. 258.

* Eſſai ſur les hieroglyph. p. 46. 47.

Learned men have long been in an error about the firſt uſe of hieroglyphics. They imagined, that the Egyptian prieſts invented them, to conceal their knowledge from the vulgar. But this miſtake has ariſen from not attending to the change of circumſtances. It is eaſy to prove, that the Egyptians uſed hieroglyphics at firſt, only to tranſmit the knowledge of their laws, their cuſtoms, and their hiſtory to poſterity. It was nature and neceſſity, not art and choice, that produced the ſeveral kinds of hieroglyphic writing. They were an imperfect defective invention, ſuited to the ignorance of the firſt ages: The Egyptians uſed them becauſe they knew not letters. If this people had firſt invented alphabetical writing, they would have been too ſenſible of its excellence to uſe any other.

This error about the uſe of hieroglyphics came from the Greeks. It was late before they had any intercourſe with the Egyptians, when alphabetic characters were in uſe. The hieroglyphic writing was abandoned by the bulk of the nation. It was then the Egyptian prieſts (who, like the other learned men of antiquity, endeavoured to conceal their knowledge) retained hieroglyphic writing as a convenient veil. In this manner, after the diſcovery of alphabetic writing, hieroglyphics became a ſecret and myſterious way of writing in Egypt.

which,

which, having a direct relation to the ſounds which men pronounced, might preſent no other idea to the mind. For this purpoſe they invented certain ſigns, whoſe property it was to repreſent words, not things; ſigns which taken ſeparately, ſignified nothing, but when joined together formed a preciſe determinate number of words *.

The inventors of this new way of writing had obſerved, as I have ſaid, that words were compoſed of a certain number of ſounds. They attempted to repreſent each of theſe ſounds by a particular ſign. In this way of writing, which I ſhall call the *ſyllabic*, they uſed only one character to expreſs each ſyllable of which a word was compoſed. As yet they had no idea of vowels and conſonants. We uſe, for example, ten letters to write the word *proſtrated*, they uſed but three characters. This, in my opinion, was the firſt ſtep men made to expreſs and repreſent words, otherwiſe than by painting objects. I ſuſpect, that originally all thoſe nations of Aſia known to the ancients under the names of Syrians and Aſſyrians, uſed the ſyllabic way of writing. We may, I think, diſcern the veſtiges of this in an ancient tradition, which aſcribes the invention of writing to the Syrians, but acknowledges that the Phœnicians improved, made it more ſimple, and brought the characters to perfection [p]. Whatever may be in this conjecture, but few nations have uſed the ſyllabic way of writing [q]. We know of none at preſent but the Ethiopians, and ſome people of India, amongſt whom it is ſtill preſerved [r].

This way of writing is really very imperfect. The great multitude of characters of which ſuch alphabets are neceſſarily compoſed, muſt have occaſioned much confuſion. It muſt have greatly fatigued the memory, and the different ſymbols of that kind of writing muſt have often been confounded. Men ſought therefore ſome method more ſimple and liable to fewer errors. At laſt they found out that way of writing, in which the vowels and conſonants are expreſſed ſeparately by ſo many diſtinct characters. The great excellence of this invention conſiſts in its ſimplicity. By a ſmall number of characters repeated and differently combined, we can expreſs all our ideas, and all our words with equal preciſion and facility. This way of writing is uſed by almoſt all nations at preſent. A ſublime invention, which muſt have coſt much labour and infinite reflections!

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* The difference between the hieroglyphic and alphabetic way of writing conſiſts in this: That one hieroglyphic figure ſignified a great many things, but one alphabetic character ſignifies nothing, or at moſt a ſimple ſound. A number of them muſt be joined to form a word. Two hieroglyphics joined together, on the contrary, would never form a word, but only a more complicated idea.

[p] Diod. l. 5. p. 390.

[q] Acad. des inſcript. t. 6. p. 614.

[r] Mem. de Trev. Mars 1740, p. 480.

But how did mankind arrive at this diſcovery? How did they paſs from hieroglyphics, and even ſyllabic writing, to alphabetic characters? This is hard to be conceived; for hieroglyphics, and even ſyllabic writing, have no relation to the letters of the alphabet. They muſt then have entirely changed the nature of the ſigns which they made uſe of. It is in vain to conſult ancient authors for clearing up this queſtion; they give us no light into the manner in which this difficult tranſition was made.

We may imagine that the contracted kind of hieroglyphic writing, of which we ſpoke above [r], might lead to the ſtill more contracted method of alphabetic letters, which, by their different combinations, expreſs every articulation of the voice in the moſt eaſy and ſimple manner. This conjecture becomes more probable, when we caſt our eyes upon the alphabets of ſome ancient nations. The letters which compoſe them, appear, both from their forms and names, to have been taken from hieroglyphic ſigns. By an attentive compariſon of the Egyptian letters, which ſtill remain, with the hieroglyphic figures ingraved upon their obeliſks and other monuments, it appears that their letters were derived from their hieroglyphics [t]. The Æthiopian alphabet, and the Armenian capitals, furniſh further proofs of the truth of this aſſertion. We perceive in them evident veſtiges of the ancient hieroglyphic writing [u].

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[r] See *ſupra*, p. 175. & 176.

[t] Rec. d'antiquit. par M. le C. de Caylus, t. 1. p. 70. 71.

[u] Eſſai ſur les hierog. p. 40. 41.; Hiſt. de la vie & des ouvrag. de la Croze, p. 126. in 12°. Amſterd. 1741.

I ſhall not inſiſt on the great difference obſervable in the alphabetic way of writing, in which the words are formed by an aſſemblage of many letters. We know, that, in moſt part of the oriental languages, the vowels are not wrote, but only the conſonants *; whereas, in all the languages of the weſt, the vowels and conſonants enter equally into the compoſition of writing.

It is impoſſible to determine the preciſe epocha of the invention of alphabetic characters. We ſee only, that this art was known in ſome countries, in very ancient times. Alphabetic writing was uſed in Arabia in the days of Job [x]. He ſpeaks of it in a very plain and poſitive manner. We muſt remember, that, in my opinion, Job was cotemporary with Jacob, and lived in Arabia. We may even ſuſpect [y] that Moſes had learned the art of alphabetic writing in this country, where he lived ſeveral years before his miſſion [z]. However this may be, from the manner in which this divine legiſlator ſpeaks of the uſe of writing, it ſufficiently appears, that in his time it was not a diſcovery abſolutely new [a]. Beſides, we cannot doubt that the knowledge of *letters* was very ancient among the Canaanites. Before Joſhua's time that people had a city named *Dabir*, which had originally bore the name of *Cariath-Sepher*, that is to ſay, *City of letters* [b].

Alphabetic writing muſt alſo have been very ancient in Egypt. Plato ſays, that Thaut was the firſt who divided letters into vowels and conſonants, mutes and liquids [c]. I doubt whether this diviſion was known in Egypt in the age in which their chronology has placed Thaut. But what Plato ſays may be conſidered as a proof, that it was the common opinion, that alphabetic characters were known to the Egyptians in the age of Thaut, that is, in the earlieſt ages.

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* Some think, however, that in the Hebrew, for example, the *Aleph, Jod,* and *Vau* are vowels. This obſervation may be applied to the other oriental languages.

[x] Chap. 13. v. 26. c. 19. v. 23. 24. c. 31. v. 35. 36.

[y] See our diſſertation at the end of the laſt volume.

[z] Exod. c. 2. v. 15. &c. See alſo our diſſertation on Job.

[a] See Exod. c. 17. v. 14. c. 34. v. 27. c. 24. v. 4. & 28. Num. c. 33. v. 1. c. 17. v. 18. c. 31. v. 9. 19. 26.

[b] Joſh. c. 15. v. 15.

[c] In Phileb. p. 374. E.

If we could depend upon what ancient authors have related of Semiramis, the hiſtory of that princeſs would furniſh us with ſtill more deciſive proofs of the great antiquity of alphabetic writing. Diodorus ſpeaks of an inſcription in Syriac characters, which Semiramis cauſed to be cut upon Mount Bagiſthan [d]. The ſame author ſpeaks of letters wrote to that princeſs by a king of India [e]. But I have already obſerved, that there were ſeveral queens of Aſſyria known by the name of Semiramis [f]. For which reaſon the facts mentioned by Diodorus cannot fix the epocha of the firſt uſe of alphabetic writing in the eaſt.

The invention of alphabetic characters muſt be conſidered as the moſt aſtoniſhing effort of the human mind. It is one of thoſe ſublime diſcoveries which can be made only by a genius of the firſt rank. The author, however, of this moſt noble invention is quite unknown; his name is covered with ſuch impenetrable ſhades of antiquity, that the moſt piercing eyes have not been able to diſcover it. I ſhall ſpend no time in this fruitleſs ſearch; but only examine in what part of the world this art, ſo excellent and uſeful, had its birth.

The invention of alphabetic characters moſt certainly appertains to thoſe nations which were firſt civilized. Theſe ſoon came to have need of ſome means of recording, with eaſe and readineſs, that infinite multitude and great variety of tranſactions which ariſe in civil ſociety. Of conſequence, they would apply themſelves, with earneſtneſs and conſtancy, to find out ſome method of painting and preſerving ideas and words.

Several nations have formerly diſputed the honour of having invented alphabetic writing [g]. I ſhall not ſtop to diſcuſs their different pretenſions; the greateſt part of them are very ill founded. I can ſee only two ancient nations to which this invention can be aſcribed with any appearance of reaſon;

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[d] Diod. l. 2. p. 127.
[e] Ibid. p. 129.
[f] See above, chap. 5. p. 168.
[g] See Diod. l. 1. p. 19. l. 3. p. 175. l. 5. p. 290.; Lucan. Pharſal. l. 3. v. 220.; Plin. l. 7. c. 56. p. 412.; Tacit. annal, l. 11. n, 14.; Clem. Alex. ſtrom. l. 1. p. 362.

the Aſſyrians * and the Egyptians. All the alphabets which are at preſent known in the world, are derived from one or other of theſe two nations. In fact, if we examine with attention the elements of all the alphabets, both ancient and modern, we ſhall plainly perceive that they are all derived from one and the ſame origin, excepting only the Chineſe characters, which are ſtill, as formerly, real hieroglyphics †. We may ſay the ſame of the Æthiopian alphabet, and of thoſe of ſome nations of India, who, as I have already obſerved, retain the ſyllabic way of writing [h].

But to which of theſe, the Egyptians or Aſſyrians, we ought to aſcribe the honour of the invention of alphabetic writing, ſeems to me a queſtion impoſſible to be decided at preſent. It appears only from the ſmall remains we have of the writing of theſe ancient nations, that their letters had a great affinity with each other. They very much reſembled one another in

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* We ought to comprehend under that name the Syrians, ſo often confounded with the Aſſyrians, by the writers of antiquity. See Theſaur. ling. & erudit. Rom. de Geſner. edit. 1749. at the word *Syria.*

I believe too from what Diodorus ſays, l. 5. p. 390. that we ought to comprehend under the name of Aſſyrians, the people which were afterwards called Phœnicians by the Greeks.

† If we could believe M. de la Croze, we muſt except the Armenian characters too. Hiſtory of his life, p. 126. This is a queſtion I am not a proper judge of; only thoſe who underſtand the Armenian beſt, are of a very different opinion from M. de la Croze. They find that the Armenian letters have a great reſemblance in their formation to thoſe of the Greek tongue. Jour. des ſcav. Juillet 1738, p. 390.

Thoſe unknown characters which have been found in the ruins of Perſepolis, muſt perhaps be conſidered as a particular kind of writing. But poſſibly the reaſon that they have not yet been read, is, becauſe they have not been exactly copied. The example of the inſcriptions at Palmyra ſhould teach us to ſuſpend our judgment. The vain efforts which had been made for near a whole century to read and explain the inſcriptions at Palmyra, had at laſt made the learned conclude, that the Palmyrean characters were a particular kind of writing. At laſt, however, M. Barthelemy has explained theſe inſcriptions in a moſt ſatisfactory manner. By the help of exact copies, he diſcovered that the Palmyrean alphabet partook of the Hebrew and Syriac. The reader may conſult his diſſertation, where he will find the greateſt elegance and erudition adorned with the moſt uncommon modeſty.

[h] See above, p. 177. & 178.

ſhape [i]; and they ranged them in the ſame manner, that is, from right to left [k].

It will perhaps be alledged, that it is very difficult to believe, that all alphabetic characters have been derived from the ſame origin, when we perceive ſuch a prodigious variety and difference in the writing of the ſeveral nations of the world. Is not the great diverſity in the manner of ranging the letters, alone ſufficient to deſtroy this opinion? Some nations have ranged their letters perpendicularly, from the top to the bottom of the page, and continue to do ſo ſtill. Others range theirs horizontally, but in different directions. The greateſt number have followed the moſt natural movement from left to right, in which the action of the arm is moſt free and diſengaged from the body. All the nations of Europe, and ſome others, diſpoſe their letters in this manner [l].

A ſmall number of nations have preferred the movement from right to left in writing. This was practiſed by the Aſſyrians, Egyptians, Phœnicians, Syrians, Arabians, Hebrews, and Chaldeans, but hardly by any other. This manner of ranging the letters is very embarraſſing. The hand and inſtrument they write with, conceal a part of the letters they have juſt formed from the eye [m].

Do not theſe various ways of writing, it may be ſaid, appear eſſentially different; and is not this a proof that ſeveral nations have owed the invention of writing to themſelves, and each formed a particular method of their own? It is eaſy to anſwer this objection. To remove it effectually, I ſhall only mention one certain and well-atteſted fact, which, I think, clearly proves that all the alphabets now known might be derived from one and the ſame origin.

Can any two ſets of letters appear to the eye more different from one another than the Samaritan and French? Yet it is very certain, and may be eaſily proved, that the letters of our alphabet were derived from the Samaritan. We received our letters from the Romans, they from the Greeks [n], theſe from the Phœnicians [o]; and the learned are now agreed that the Phœnician and Samaritan characters were the ſame [p].

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[i] Rec. d'antiq. par M. le C. de Caylus, t. 1. p. 74. See alſo Plut. t. 2. p. 577. & ſeq.

[k] Herod. l. 2. n. 36.; Bibliot. Choiſ. t. 11. p. 37.

[l] Acad. des inſcript. t. 6. p. 607.

[m] Ibid. t. 6. p. 618.; Reland, diſſert. miſcellan.

But beſides this evidence from hiſtory, a little reflection on the names and order of the letters, in the ſeveral alphabets I have juſt mentioned, will be ſufficient to convince us of the truth of this genealogy. How could it have happened, that the Phœnician, Samaritan, Greek, Latin, and French letters, ſhould all have the ſame names, and be ranged in the ſame order, if they had not been derived from the ſame origin?

The little reſemblance, therefore, that appears at preſent between the alphabets of the different nations of the world, is no ſufficient reaſon to make us deny, that they all proceeded from one common ſource. The ſucceſſion of ages has introduced prodigious changes in their manner of writing in each nation. The hiſtory of writing among the Greeks, Romans, and modern nations of Europe, furniſh more than ſufficient evidence of this. There is a nation in which the way of writing has varied ſo much, that their ancient alphabet has hardly any reſemblance to their preſent, either in the ſhape or arrangement of the letters [q], though it is certain they were derived from the ſame origin.

We can ſpeak but very imperfectly of the number of letters of which the firſt alphabets were compoſed. Ancient writers have not explained themſelves on this ſubject. Plutarch ſays that there were twenty-five letters in the Egyptian alphabet [r]. But I cannot believe that all theſe letters were invented at the very firſt. We know that originally the Phœnicians had but ſixteen letters: their alphabet conſiſted of no more than this number when Cadmus introduced it into Greece [ſ]. I am perſuaded the Egyptians, in like manner, invented but a ſmall number of letters at firſt, and by degrees added others; to expreſs the ſeveral articulations of the voice in a more diſtinct and commodious manner.

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[n] Tacit. annal. l. 11. n. 14.

[o] See part 2. b. 2. ſect 2. chap. 6.

[p] See les mem. de Trev. Juill. 1704, p. 183.

[q] See part 2. b. 2. ſect. 2. chap. 6.

[r] Tom. 2. p. 374. A.

[ſ] Plin. l. 7. ſect. 57. p. 412.

Beſides, we are not to imagine that the diſcovery of alphabetic writing was very much diffuſed into the different parts of the world, in the ages we are now examining. On the contrary, it is proved to a demonſtration, that very few nations had any knowledge of it in that period. All the world, excepting Egypt, and ſome parts of Aſia, were for many ages entirely ignorant of this neceſſary and uſeful art. I ſhall take care to point out, in the ſecond part of this work, when the knowledge of alphabetic writing was introduced into Europe. Let us ſpeak at preſent of the various materials which have been uſed in different ages in the art of writing, taking that term for all kinds of writing originally known; ſuch as deſigning at full or abridged, hieroglyphics, &c.

We know that rocks and ſtones were the firſt materials uſed for writing by the Egyptians [t], the ancient inhabitants of the north [u], and no doubt by many other nations. From hence came the practice almoſt univerſal among the nations of antiquity, of writing upon pillars, whatever they thought worthy of tranſmitting to poſterity [x]. The pillars ſet up by Oſiris, Bacchus, Seſoſtris, and Hercules, in the courſe of their expeditions, to perpetuate the memory of them, were very famous in antiquity [y]; thoſe of Mercury Triſmegiſtus were ſtill more celebrated. On them, as is ſaid, he had ingraved his whole doctrine and precepts in hieroglyphic characters [z]. In Crete there were very ancient pillars, on which was inſcribed a deſcription of all the ceremonies practiſed by the Corybantes in their ſacrifices [a]. In Demoſthenes's time there ſtill exiſted a law of Theſeus, wrote upon a pillar of ſtone [b]. The fable of the pillars of the earth, which Atlas committed to Hercules, ought to be underſtood, in my opinion, of certain pillars with learned inſcriptions upon them, which Atlas explained to the ſon of Jupiter [c].

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[t] Lucan. Pharſal. l. 2. v. 222. &c.

[u] Olaus Wormius de Dan. litterat. c. 25; Voſſius de art. gramm. l. 1. c. 25. p. 125.; Herman. Hugo de prima ſcrib. orig. c. 8. p. 61. &c. c. 10. p. 76. Some remains of theſe ancient inſcriptions are ſtill to be ſeen in Denmark. Mem. de Trev. June 1713, p. 949. &c. Decem. 1719, p. 124.

[x] Diod. l. 3. p. 211.; Strabo, l. 2. p. 259.

[y] Diod. l. 1. p. 23. & 65. l. 3. p. 243. l. 4. p. 264.; Apollod. l. 2. p. 100. l. 3. p. 142; Dionyſ. Perieget. v. 623.

[z] Manetho apud Syncell. p. 40.; Jamblic. de myſter. Egypt. ſect. 13. c. 2.

Though the nations of the north had little or no connection with thoſe of Aſia and Africa, yet their hiſtory ſpeaks of this practice in the primitive times, of inſcribing upon pillars whatever they deſired ſhould be remembered. It is pretended there were ſome of them more than forty feet high, covered with inſcriptions, coarſe indeed, agreeable to the rudeneſs of their manners [d]. We may aſſert poſitively, that the firſt nations had no other monuments for recording their laws [e], their public acts, and treaties [f], the hiſtory of great events [g], or important diſcoveries [h]. The greateſt part of ancient authors compoſed their works from ſuch kind of books [i].

The practice of writing on bricks and flat ſtones, was alſo very ancient. It was upon bricks the Babylonians wrote their firſt aſtronomical obſervations [k]. The moſt ancient monuments of the Chineſe literature were inſcribed upon large tables of very hard ſtone [l]. Who knows not that the decalogue was wrote upon tables of ſtone[m]? Joſhua too wrote a copy of the law upon the like materials[n].

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[a] Porphyr. de abſtin. l. 2. p. 156. 157.

[b] In Næeram, p. 873. C.

[c] Clem. Alex. ſtrom. l. 1. p. 360.; Potter. ibid. note 12.

[d] Olaus Magn. hiſt. gent. Septent. l. 1. c. 36.

[e] Deut. c. 27. v. 8.; Plato, *in* Crit. p. 1107. C.; Dionyſ. Halicarn. l. 4. p. 240.; Athen. l. 11. p. 467. E.

[f] Strabo, l. 3. p. 259. l. 10. p. 688.; Plut. t. 2. p. 292. B.; Pauſ. l. 5. c. 12. & 23. l. 8. c. 25.

[g] Herod. l. 2. n. 102. & 106. l. 4. n. 87.; Diod. l. 1. p. 65. & 67. l. 5. p. 368.; Strabo. l. 10. p. 687.; Tacit. annal. l. 2. n. 60.

[h] Proclus in Tim. l. 1. p. 31. F.; Achill. Tat. apud Petav. uranolog. p. 121.; Galen. adverſ. Julian. c. 1. t. 9. p. 376.; Apollon. Argon. l. 4. v. 279. &c.

[i] Clem. Alex. ſtrom. l. 1. p. 356. 357.; Plin. l. 36. ſect. 14. p. 736.; Syncell. p. 40.; Jamblic. de myſter. Egypt. ſect. 1. c. 2.

It was undoubtedly from this ancient practice, the hiſtorian Joſephus imagined theſe two pillars, which he ſays were ſet up by the children of Seth before the deluge. I ſhall ſpeak more particularly of them in the article of aſtronomy.

[k] Plin. l. 7. p. 413. [l] Lettr. édif. t. 19. p. 479.

Theſe methods were too toilſome and tedious; it was natural to ſtudy more commodious and eaſy ways of writing. To the bricks and ſtones which they uſed at firſt, they ſubſtituted the ſofter kinds of metals which were moſt eaſily ingraved. It appears, that, in the days of Job, they moſt commonly wrote upon ſheets of lead, with ſtyles of iron[o]. Plates of copper[p] and tablets of wood[q], were uſed in ancient times for this purpoſe. We have reaſon to believe, that the archives of cities and empires were for many ages preſerved in this manner[r]. The moſt ancient nations had ſeveral motives to make uſe of ſuch materials. For a long time they knew of none more proper or convenient; and as there were but very few in theſe remote ages who practiſed the art of writing, it was neceſſary to uſe the moſt ſolid and durable materials for the preſervation of their public acts and monuments.

In the ſequel ſeveral other materials were uſed for writing on, as the leaves of certain plants, the inner bark of certain trees, the ſkins of animals, ſtuffs, tablets of wood covered with wax, &c[ſ]. Theſe are ſtill uſed in ſome countries of Aſia and Africa. Job ſpeaks of writing a book[t]. I cannot imagine what could be the form or materials of books in that age. From hence, however, we learn that even then they wrote upon ſubſtances which were capable of being folded or rolled up; for the expreſſions uſed by Job denote this [u]. Theſe might perhaps be very thin plates of metal, ſkins, the leaves or inner bark of trees, or plants, &c. I have ſaid ſomething already of plates of metal. The practice of writing on the ſkins of animals, was both very ancient and very general [x]. That of ſtamping characters upon the leaves, or interior bark of trees, with a blunt punchion of iron, was a practice no leſs ancient and univerſal [y]. We may chuſe which of theſe we think moſt probable; only remembering that in the paſſage where Job mentions writing, he ſpeaks of no other inſtrument but the ſtyle made of iron. We may conclude from thence, that in his time they knew of no other inſtrument for drawing characters. In general, it is evident that in theſe ages they might be ſaid rather to have ingraved than written.

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[m] Exod. c. 24. v. 12. c. 34. v. 1. & 4.

[n] Joſ. c. 8. v. 32.

[o] Chap. 19. v. 23. 24. See alſo Plin. l. 13. ſect. 21. p. 689.; Pauſ. l. 7. c. 31.

[p] Plato in Min. p. 568. F.; Sophocl. in Trachin. v. 695. 696.; Ovid. met. l. 1. v. 91. 92.; Plin. l. 34. ſect. 21. p. 659.; Tacit. annal. l. 4. n. 43. Plut. t. 2. p. 577.; Hiſt. gen. des voyag. t. 6. p. 253.

[q] Iſ. c. 30. v. 8.; Horat. art. poet. v. 399.; A. Gell. noct. Attic. l. 2. c. 12. See le P. Calmet, t. 1. p. 32.

[r] See Polyb. l. 3. p. 181. edit. Pariſ.; T. Livius, l. 3. n. 57.; Plin. l. 13. ſect. 21. p. 689. l. 34. ſect. 21. p. 659.; Tacit. annal. l. 4. n. 43.; Suidas, in Ἀκουσίλαος, t. 1. p. 89.; Pauſ. l. 4. c. 26.; Lettr. édif. t. 14. p. 332. 333.; Bibliot. anc. & mod. t. 15. p. 363. 364.

[ſ] See Plin. l. 13. ſect. 21.; Iſidor. orig. l. 6. c. 12.; Suid. voce Ἐκφυλλοφορῆσαι, t. 1. p. 707.; Calmet, t. 3. p. 48.

[t] Chap. 31. v. 35.

The art of drawing letters on ſome kinds of ſubſtances, with certain coloured liquors, was afterwards found out. At firſt they laid them on with pencils, a practice ſtill retained by the Chineſe and ſeveral others. To pencils, reeds properly cut, ſucceeded; theſe, with iron ſtyles, which were abſolutely neceſſary when they wrote on plates of metal or tablets covered with wax, were the only inſtruments uſed in writing for many ages. The uſe of paper, pens, and ink, was quite unknown to the ancients. Theſe facts ſhew ſufficiently that all the ancient ways of writing were tedious, toilſome, and difficult; that great patience and application were neceſſary to the practice of them. Theſe were no doubt great obſtacles to the progreſs of writing. We may add, that mankind in the firſt ages not being very numerous, and the greateſt part of them being conſtantly employed in providing for the moſt preſſing neceſſities of life, few had leiſure or inclination to apply to an art which required ſo much labour, time, and ſtudy. For this reaſon, though writing was known in the ages we are now examining, it was but little practiſed. We do not find it was at all uſed in the common affairs of ſocial life. When Joſeph diſcovered himſelf to his brethren, and ſent them back to their father, he did not charge them with any letters. He gave them his orders by word of mouth, and injoined them to deliver what he ſaid in the ſame manner [z]. Jacob, to diſtinguiſh the place where Rachel was buried, ſet up a pillar. It is not ſaid that he put any inſcription upon it [a]. Neither did they make uſe of writing in the moſt important tranſactions of ſociety. Sales, promiſes, obligations, were all verbal in the preſence of a certain number of perſons. All diſputes were tried and determined by the verbal teſtimonies of witneſſes [b].

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[u] Chap. 31. v. 36.

[x] See Herod. l. 5. n. 58.; Suid. *voce* Ἀρχαιοτερα, t. 1. p. 341.; Rep. des lettr. t. 22. p. 253.

[y] See Virgil. Æneid. l. 3. v. 444.; Hiſt. gen. des voyag. t. 6. p. 253. t. 8. p. 147. & 532.; Eſſai ſur les hieroglyph. des Egyp. t. 2. p. 455.; Voyag. de Pyrard, p. 103. & 293.; Rec. des voyages qui ont ſervi à l'établiſſement de la compagnie des Ind. Holland. t. 1. p. 270. & 361.

We need not be ſurpriſed that writing was originally ſo little uſed. The practice of that art was ſo tedious, and ſo difficult that it could not be common. This was one great reaſon of the very ſlow progreſs of the arts and ſciences. Human knowledge can only be enlarged and improved, in proportion to the means which ingenious men have of communicating their diſcoveries to poſterity with clearneſs, certainty, and eaſe. The methods which mankind firſt employed for communicating their thoughts, had none of theſe properties.

Arts and ſciences were not the only ſufferers from theſe defects in the art of writing; they had alſo a fatal influence on manners. Man needs inſtruction to form and regulate his manners; and if the light of the underſtanding does not entirely extirpate the perverſe inclinations of the heart, it contributes greatly to ſoften and correct them. But how was it poſſible to inſtruct and enlighten mankind without the uſe of writing? I need not fear then to affirm boldly, that no diſcovery has contributed ſo much to draw men out of their primitive barbarity, as the art of writing with facility. The propagation of this art has been the great means of enlightening the minds, forming the hearts, and ſoftening the manners of mankind; the great inſtrument of civilizing the world and ſtrengthening the ties of ſocial life. If there are ſtill ſome nations of ſavages to be ſeen in both continents, who by their ignorance, fierceneſs, and barbarity, are a diſgrace to human nature, it is owing to their ignorance of the art of writing, and of the various branches of knowledge which depend upon it. Let this art be introduced amongſt theſe ferocious people, let them once apply themſelves to the cultivation of letters, they will inſtantly be humanized *. What an unbounded field for reflection is it, to conſider the prodigious changes which the art of writing with facility, has introduced amongſt thoſe people who have applied themſelves to it! We ſhould never have done if we attempted to enumerate the infinite advantages which ſociety has derived from this diſcovery.

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[z] Gen. c. 45. v. 9. [a] Ibid. c. 35. v. 20.

[b] See above, b. 1. chap. 1. art. 1. p. 27. & 28.

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* It is hardly poſſible to imagine what ſtrange ideas the ſavages have of epiſtles, and of writing in general. We may judge of this from a very curious ſtory related by Voſſius in his treatiſe *de quatuor art. popul. c. 2. p. 7.*

BOOK

B O O K III.

Of Sciences.

THE arts and ſciences are ſo nearly related and intimately connected, that they ought not to be ſeparated. Their origin has been the ſame. The branches of knowledge, which are now dignified with the name of *Sciences*, were at firſt only rude unpoliſhed arts, practiſed without theory, principles, or method. But by much ſtudy and reflection, in a long ſucceſſion of ages, they have been reduced to rules, and raiſed to that perfection which diſtinguiſhes the ſciences from the arts; which conſiſt rather in the labour of the hands, than the exerciſe of the mind.

The way of life which mankind led in the firſt ages after the confuſion of tongues, and diſperſion of families, would not permit them to acquire very extenſive knowledge, or even to cultivate what had ſurvived the deluge. Wholly buſied in providing for the moſt preſſing neceſſities of life, they could not poſſibly employ their thoughts in matters of ſtudy and ſpeculation. But after the reunion of families, and eſtabliſhment of ſocieties, ſome enjoyed ſuch a degree of eaſe and leiſure, as enabled them to apply their minds to reſearches and inquiries of an abſtracted nature. Men of a happy and inventive genius, who are raiſed up by providence, for the good of mankind in every age, then appeared. Theſe, being ſenſible of the great inconvenience of working without rule or guide, endeavoured to form ſyſtems, and lay down regular plans for the direction of their various operations. It was neceſſity, that parent of ſciences, as well as arts, which ſet their thoughts to work. Ancient traditions aſcribe the invention of both to the ſame perſons, viz. to the gods. A proof that mankind have in all ages acknowledged themſelves indebted to the goodneſs of the ſupreme Being, for the firſt diſcoveries.

It is impoſſible to follow mankind ſtep by ſtep in their advances towards the knowledge of the moſt ſublime and moſt abſtracted ſciences. It would be vain to attempt this. Ancient writers have not furniſhed us with ſufficient lights on this ſubject. They have contented themſelves with telling us the names of thoſe who were regarded by antiquity as the inventors of the ſeveral ſciences. But they have not told us by what means they arrived at theſe inventions, and by what ſteps they brought them to perfection. We muſt have recourſe to conjecture for want of information.

The moſt uſeful and moſt neceſſary ſciences would be cultivated firſt. We cannot therefore doubt the great antiquity of medicine, arithmetic, aſtronomy, and geometry. The love of life, the neceſſity of keeping the tranſactions of ſociety in order, the importance of dividing lands, which introduced the diſtinction of property, and regulating the operations of tillage, and the impoſſibility of executing any conſiderable enterpriſe, without ſome knowledge of the relations and proportions of things, muſt have occaſioned the early birth of the ſciences we have mentioned.

CHAP. I.

Of Medicine in general [*].

ONE of the firſt cares of mankind, was certainly that of their own preſervation. Finding themſelves from their very birth expoſed to various accidents and diſeaſes, they would ſoon begin to look about for remedies. But how they came to diſcover the different ſpecifics for their different diſeaſes, and the moſt proper methods of applying theſe ſpecifics, is what we cannot tell. We have nothing left us about the invention of medicine, but a heap of fables. Every nation aſcribes this invention to themſelves, and names thoſe they conſider as the authors of it. It would be quite uſeleſs to enter into any diſquiſition about theſe names.

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[*] It is ſcarce neceſſary to obſerve, that the ancients did not affix the ſame idea to the word *medicine* that we do. Under that name they comprehended every thing that related to the art of healing. We ſhould conſequently have comprehended in one article all the branches of that art. Yet, for the greater clearneſs, I have reſolved to treat of them ſeparately. Under the article of *medicine*, I propoſe only to give ſome general hints how the firſt remedies were diſcovered.

It is very certain, that the different practices uſed in different countries were not invented by one and the ſame perſon. Every man naturally attends to what may contribute to his preſervation. As mankind therefore were diſperſed into different climates, they ſought for ſuch remedies as were beſt ſuited to the diſeaſes incident to the climates which they inhabited. Accordingly we find that each nation had its own peculiar method, of its own invention, for the curing of diſeaſes. It was only through length of time, and by means of commerce, that ſome medical operations and receipts have been communicated from one country to another.

We can only make ſome very general reflections on the riſe of medicine. This ſcience derived its origin from experience and obſervation. Some remedies which nature furniſhes, were at firſt diſcovered by chance. The firſt generations of mankind ſubſiſted chiefly on plants, roots, and fruits, of whoſe qualities they had no previous knowledge [a]. They would find that ſome of theſe produced very remarkable effects. The obſervation of this would lead them to make diſtinct experiments on the virtues of each of them. Theſe repeated experiments would diſcover their different qualities. Such obſervations and experiments guided the minds of men in their inquiries, and on theſe they founded the principles of medicine *. Many ages, it is true, muſt have elapſed, before they had diſcovered with certainty the properties and preparations of remedies proper for each diſeaſe. Medicine in the firſt ages of the world was not properly a ſcience. The practice of ſeveral nations furniſhes us with proofs of this. In Siam their medicine conſiſts of a certain number of receipts which have been handed down from their anceſtors. They apply theſe at random, without any regard to the particular ſymptoms of diſeaſes [b]. The Peruvians [c] had ſeveral medical receipts and operations which they had learned from experience, but they had formed no theory of that ſcience. The art of healing owes its improvement to the attentive ſtudy of natural hiſtory *.

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[a] See above, b. 2. p. 76. & 85.

* It is certain the *dietetic* was that part of medicine which was firſt in uſe. Men had daily occaſion to obſerve what meats and drinks were healthful or hurtful. Without ſuch obſervations they muſt have fallen into diſeaſes which muſt have proved deſtructive.

When we inquire in what manner medicine was practiſed in remote antiquity, we muſt make a diſtinction between medicine, conſidered as an art, and that which may be called natural. This laſt was practiſed many ages before there were any phyſicians by profeſſion. At firſt all perſons preſcribed without diſtinction †. Whoever had made any experiments upon himſelf or others, communicated them to his friends and neighbours, when they ſeemed to have the like diſorders. Reflections upon theſe experiments, formed, by degrees, a kind of ſyſtem of natural medicine. Fathers took care to teach their children what knowledge they had of this kind. This we learn from ancient traditions. Iſis, it is ſaid, inſtructed his ſon Orus in medicine [d].

We are informed, that, in ſome countries, care was taken that every individual might enjoy the benefit of the diſcoveries which others had made. It was the cuſtom of the Babylonians, Egyptians, and ſome other nations, to expoſe their ſick to public view. The deſign of this was, that ſuch as paſſed by, if they had been attacked and cured of the like indiſpoſitions, might aſſiſt them with their advice. No perſon was even permitted to paſs by without informing himſelf of their diſeaſes [e]. This cuſtom bears the marks of the higheſt antiquity, and ſhews us in what manner medicine was practiſed in the moſt early times. For ſuch a cuſtom could only prevail before this art had been reduced into any ſyſtem.

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[b] Hiſt. gen. des voyag. t. 9. p. 264.

[c] Hiſt. des Incas, t. 2. p. 35. & 47

* *Ita ut morborum curatio, et rerum naturæ contemplatio, ſub iiſdem autoribus nata ſit*, ſays Celſus, l. 1. in præfat.

† Pliny juſtly obſerves, that though there are ſome nations who have no phyſicians, yet they are not altogether ſtrangers to phyſic. l. 29. ſect. 5. p. 495. See alſo les mœurs des ſauvages, t. 2, p. 364.

[d] Diod. l. 1. p. 30.

Garcilaſſo ſays, that the Peruvians cured one another by remedies which they had learned from father to ſon. Hiſt. des Incas, t. 2. p. 48. 49.

This is all we can ſay of the ſtate of this ſcience in the ages now under our conſideration. We muſt, as I have ſaid already, content ourſelves with ſome general reflections. For we cannot know the particular remedies which were uſed by different nations, till after the time that medicine had been reduced into an art and ſyſtem. The Aſſyrians, Egyptians, and Phœnicians, are believed to have been the firſt who made a particular ſtudy of phyſic. But we are ignorant of the time when this ſcience was reduced by theſe nations into an art, and into a particular profeſſion.

There is no mention of phyſicians, properly ſo called, before the age of Moſes. For which reaſon we muſt refer to the following books what we have to ſay of the method in which phyſic was practiſed by the Egyptians. This is the only nation in remote antiquity whoſe method of practice we are a little acquainted with. We may add further, that medicine in the ſenſe we now underſtand it, for the cure of internal maladies, ſeems to have been quite unknown in the firſt ages of the world.

In fact, we find no mention in the firſt ages, either of phyſicians or medicines for thoſe diſeaſes which proceeded from the diſorder of the humours. There is not one word of this in the patriarchal hiſtory, although it mentions the ſickneſs of Iſaac, Abimelech, Rachel, and ſome others. It is very remarkable, that when Jacob was ſick, it is not ſaid that Joſeph ſent him phyſicians *.

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[e] Herod. l. 1. n. 197.; Strabo, l. 3. p. 234. l. 16. p. 1082.

* It is true, we find the word *phyſicians* in this paſſage, on occaſion of the death of Jacob. Moſes ſays, that Jacob being dead, Joſeph commanded the phyſicians to embalm the body of his father. Gen. c. 50. v. 2.

The book of Job may ſerve to confirm what we have now ſaid. That book is evidently of the greateſt antiquity [f]. When Job was ſmote with a terrible diſeaſe, we do not hear that he had recourſe to phyſicians. His diſorder was conſidered as an immediate ſtroke of heaven. His friends reaſoned according to this prejudice, and ſet themſelves to prove that it was the puniſhment of his crimes.

The little knowledge mankind had of medicine in theſe ages, and the prevailing perſuaſion, that diſeaſes were the effects of the divine diſpleaſure, was the reaſon that they chiefly applied to the Deity and his miniſters for their cure. They expected no aſſiſtance from human art. This way of thinking is atteſted by one of the moſt famous phyſicians of antiquity. Celſus ſays that they imagined all internal diſeaſes came immediately from the gods, and they applied to them only for their cure [g].

ARTICLE I.

Surgery.

Medicine, ſurgery, and pharmacy, were not originally diſtinct profeſſions, but united in the ſame perſon. It was not neceſſary to ſubdivide the art of healing into ſeveral branches, till knowledge and diſcoveries were almoſt become infinite. Surgery was probably the firſt reduced into an art *.

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But this has no relation to the practice of medicine. Theſe phyſicians were only employed in embalming the body of Jacob, but were not called in to aſſiſt him in his ſickneſs. Their function on this occaſion had no connection with the real object of medicine; which is the cure of diſeaſes. We muſt take notice, that all perſons whoſe profeſſions engaged them in the care of the human body, were anciently called phyſicians. The Septuagent renders the Hebrew word by Ἐνταφιασταὶ, *Pollinctores, Veſpillones,* Embalmers.

[f] See our diſſertation upon the antiquity of the book of Job, at the end of the laſt volume.

[g] Lib. I. in præfat. This way of thinking ſtill prevails in ſeveral nations. de Francois Voyage Pyrard, c. 9. p. 62. 63. 131. 132. & 282.

* Celſus makes ſurgery the moſt ancient branch of medicine. He ſays, that

The other branches of medicine might in ſome ſort be diſpenſed with, but the ſtudy of ſurgery has been abſolutely neceſſary in all ages.

To ſay nothing of other accidents which require the aſſiſtance of ſurgery, men were very early engaged in quarrels. As ſoon as battles were fought, it became neceſſary to ſtudy the art of healing wounds. They could not, as in the caſe of internal maladies, expect a cure from the mere efforts of nature. Every individual could not, from his own experience, be furniſhed with ſufficient ſkill to heal a wound, to reduce a diſlocation, or ſet a broken bone. Theſe things require ſuch a degree of experience and dexterity, as can only be acquired by long practice. It was neceſſary therefore that ſome perſons ſhould devote themſelves to that ſtudy. It is even probable, that the firſt phyſicians owed the honours of that name to their ſkill in ſurgery. As they treated diſorders which could not be cured without their help, men were willing to diſtinguiſh and reſpect them more than thoſe who were concerned in the other part of medicine [h].

We have no accounts remaining of their manner of treating wounds, in the firſt ages of the world. It was probably very ſimple. Bandages muſt have been the firſt means uſed for ſtopping blood, and defending the wounded part from the injuries of the air *. In proceſs of time, the juice of roots, or ſimples, either pounded, or ſteeped in wine or water, would be added. The wood and bark of certain trees, oil, and roſin, were alſo uſed [i]. Theſe were the only remedies originally known. The compoſition and uſe of ointments

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that medicine originally conſiſted in the practice of ſurgery, and dreſſing of wounds, &c. *Morbos vero* (adds he) *ad iram deorum immortalium relatos, & ab iiſdem opem poſci ſolitum.* l. 1. in præfat. & l. 7. in præfat.

Another proof, that men firſt applied to the ſtudy of ſurgery, is, that the ſavages underſtand ſeveral branches of that art very well. Mœurs des ſauvages, t. 2. p. 365 & 368.

[h] Servius, ad Æneid. l. 12. v. 396. See alſo le Clerc, hiſt. de la med. part 1. c. 15.

* This is practiſed by the ſavages. See l'hiſt. nat. de l'Iſlande, t. 2. p. 174. & l'hiſt. gen. des voyag. t. 4. p. 139.

[i] Iliad. l. 11. v. 845.

and plaiſters, was poſterior to the ages we are now examining *.

With reſpect to operations, we may well believe, that they were then very imperfect, ſuch as might be expected from men almoſt totally ignorant of the arts and ſciences. Theſe firſt operators, deſtitute of the light of a wiſe and rational theory, unacquainted with any ſettled rules or principles, had no other guide but a ſimple practice †.

Beſides, the inſtruments uſed by the firſt operators in ſurgery muſt have been very defective. They could not be of iron; for it was long, as we have already ſhown, before that metal was diſcovered. It muſt even have been a conſiderable time before men underſtood the art of working the other metals, with ſo much delicacy, as to uſe them in chirurgical operations. They ſupplied this want by other inventions. It ſeems probable, that ſharp flints, the pointed bones of beaſts and fiſhes, were the firſt inſtruments uſed in ſurgery. The Egyptian embalmers uſed an Ethiopian ſtone, exceeding ſharp, for opening dead bodies, and taking out the entrails [k]. Circumciſion alſo was performed with ſuch ſtones [l]. The ſavages preſent us, at this day, with practices ſimilar to theſe [m].

Surgery would neceſſarily improve from time to time; the whole world would contribute to the advancement of ſuch a uſeful art. It muſt have been a long time, however, before the introduction of thoſe capital operations, which require great dexterity, and a thorough knowledge of the ſtructure of the human body.

It is not certainly known, whether bleeding, at preſent the moſt common operation in ſurgery, was practiſed by the moſt ancient

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* We find no mention of theſe in the books of Moſes. It is certain Homer never names them; a proof that they were not known in his time.

† We may compare the firſt ſurgeons, to a ſet of men known in the country, by the name of *Bone-ſetters*.

[k] Herod. l. 2. n. 86.; Diod. l. 1. p. 102.

[l] Exod. c. 4. v. 25.

[m] See Mœurs des ſauvag. t. 2. p. 370.; Voyag. de la baye d'Hudſon, t. 1. p. 108.; Hiſt. des Incas, t. 2. p. 47.

ancient nations. It does not appear to have been uſed amongſt the Egyptians. Their principal remedies, as I ſhall ſhew in the ſecond part, were diet, gliſters, and vomits. Bleeding is an operation of ſo great importance, that if it had been uſed by that people, it would have been mentioned by Herodotus, or Diodorus, who give ſo diſtinct and full an account of the practices of the Egyptians.

Beſides, it is not probable that men would ſoon think of, or readily ſubmit to ſuch a remedy. Nature does not give the ſame indications for bleeding as for purging. Purgatives were diſcovered by chance, being taken into the bodies of the firſt men by way of common food. They occaſion a diſcharge of the humours too in an ordinary way, which is not the caſe with bleeding. Much more knowledge and reaſoning therefore were neceſſary to bring men to a reſolution of opening a vein, than of giving purgatives [n].

I ſhall finiſh what I have to ſay of ſurgery at preſent, with a few reflections on midwifery. We may be ſure that this operation was one of the firſt which engaged the attention of mankind.

It is more than probable, that women in the firſt ages were delivered by themſelves. Like the ſavages, and the greateſt part of animals [*], they did not wait for foreign aid to facilitate that dolorous operation. But as every delivery is not equally eaſy and happy, ſome women would ſoon be found in ſuch diſtreſsful circumſtances, as required the help of others to ſave them and the fruit of their wombs from periſhing, by a labour too long and painful. It is highly probable, that women were the firſt who lent aſſiſtance to their own ſex in theſe critical moments. Mothers performed this office to their daughters. Their own experience taught them to aſ-

[n] Hiſt. de la medec. l. 1. c. 18. p. 52. 53.

[*] I ſay the greateſt part of animals, becauſe, from late diſcoveries, it appears, that the male, in ſome kinds of animals, aſſiſts the female in bringing forth her young; as particularly the toad. Acad. des ſciences, ann. 1741. hiſt. p. 28. & ſeq.

Gaſſendi ſpeaks of the like obſervation, made by Peyreſc, upon cats. Theſe are his words, *Annotavit feles obſtetricatione interdum uti.* Vita Peyreſci, p. 212. edit. Batav. in 4^to.

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ford help to others, and remove the obſtacles to a ſpeedy delivery.

The reflections which were afterwards made on the many fatal accidents to which women in labour are expoſed, convinced the world of the neceſſity of making midwifery a ſtudy, and reducing a practice ſo important in its conſequences, into an art. We need not therefore be ſurpriſed to find that midwifery was a particular profeſſion in the days of Jacob. By the manner in which Moſes expreſſes himſelf on this ſubject, it is eaſy to obſerve, that there were then, in the nations of Aſia [o], midwives by profeſſion, as there are amongſt us at preſent. The fact proves too that women were preferred to men in the practice of this art. A juſt and natural preference, as they had only experience at that time for their guide.

It appears alſo, that in Egypt, from time immemorial, the care of delivering women was committed to women [p]. We might even imagine from the words which Moſes uſes, that the Egyptian midwives uſed ſome ſort of machine for facilitating delivery; this was, as far as we can gueſs, a kind of chair, on which they placed the mother in the time of labour [q].

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[o] Gen. c. 35. v. 17. c. 38. v. 27.

[p] Exod. c. 1. v. 15. & ſeq.

There is ſome difficulty in the text. The generality of interpreters, however, are of opinion, that the midwives Pharaoh commanded to ſlay the male children of the Iſraelites, were Egyptians. Joſephus ſays ſo expreſsly. Antiq. l. 2. c. 5. Beſides, v. 19. of the ſame chapter leaves no room to doubt but there were midwives by profeſſion in Egypt.

[q] Exod. c. 1. v. 16. according to the Hebrew. The word אבנים *Abenaim*, in Latin *Sellas*, is ſuſceptible of ſeveral interpretations. See Vatablus *ad locum cit.*

What confirms the interpretation we have given of this word, is, that there is frequent mention of ſuch ſeats for facilitating delivery in phyſical writers. See Suid. *voce Λοχαίοι δίφροι*, t. 2. p. 461.

ARTICLE

ARTICLE II.

Anatomy.

WE cannot conceive at preſent how any operations could be performed on the human body, without an exact knowledge of the arrangement of its parts. Anatomy is certainly the foundation both of medicine and ſurgery. Without ſome ſkill in anatomy, it is impoſſible to know either the cauſe or the ſeat of ſeveral diſeaſes. It ſeems natural to ſuppoſe, therefore, that anatomy muſt have been at leaſt as ancient as medicine or ſurgery. But hiſtory contradicts this ſuppoſition. Before we proceed any further, it may be proper to fix the idea we ought to form of anatomy. We may conſider it in two different periods, in its commencement and in the high degree of perfection it has attained in our days.

Anatomy is, at preſent, that branch of medicine which requires the deepeſt ſtudy and penetration, the moſt various and moſt extenſive knowledge, and the moſt delicate operations. Anatomy, conſidered in this point of view, was certainly unknown in the firſt ages. Reaſon, independent of hiſtorical proof, is ſufficient to convince us of it.

Notwithſtanding this, men might have ſome imperfect knowledge, even in the earlieſt ages, of the internal ſtructure of their bodies. Their opening the bodies of animals deſigned for food would give them ſome light [r]. Their viewing attentively the wounds, fractures, and other accidents to which the human body is expoſed, would furniſh them with further hints. But how long muſt it have been, before they knew how to turn their obſervations into uſe, how to reaſon upon what they had ſeen? Many ages muſt have elapſed before anatomy reflected any light on medicine, or directed the operations of ſurgery *.

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[r] See l'hiſt. gén. des voyag. t. 5. p. 170.

* We will find no difficulty in believing what is here advanced, when we conſider

Anatomy, we have reaſon to think, owed its origin to ſurgery. The various and frequent occaſions men had of practiſing the chirurgical art, would by little and little make them acquainted with the ſtructure and mechaniſm of their bodies. This acquaintance, however, would for a long time amount to no more than an imperfect knowledge of the exterior parts of the human body. Some writers indeed have been inclined to think, that theſe firſt ages had almoſt as extenſive and exact a knowledge of anatomy as we have at preſent. But if theſe authors had duly reflected on the infinite number of rational experiments, and delicate operations, which muſt have concurred to bring anatomy to its preſent ſtate of perfection, they could not have entertained an opinion ſo contrary both to hiſtory and probability. It may not be improper to mention our reaſons for rejecting this abſurd opinion.

Such is the favourable idea which all ages have entertained of the ancient Egyptians, that the invention of almoſt all ſciences has been aſcribed to them. Amongſt others, ſurgery and anatomy have not been forgot; and Apis, one of their kings, paſſed for their inventor [ſ]. Athotis, one of the firſt ſovereigns of Egypt, they pretend, had writ ſeveral books on anatomy, in which he treated of the manner of diſſecting bodies [t]. They ſay further, that amongſt the prodigious number of books aſcribed to Hermes, there were ſix on medicine, the firſt of which related to anatomy [u]. But no phyſician of antiquity has quoted theſe pretended writings, and it is well enough known what we ought to think of the books aſcribed to Hermes,

The embalming the bodies, not only of men, but of other animals, which had been practiſed by the Egyptians [x] in all

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conſider that the ſtudy of anatomy was quite abandoned for many ages, and not reſumed till the ſixteenth century.

[ſ] Agrippa, de vanit. ſcient. c. 85.; Clem. Alex. ſtrom. l. 1. p. 362. & Theodoret. (ſerm. de curand. Græc. affect. p. 467.) aſcribe the invention of medicine to Apis.

Suidas ſays the ſame, *voce* Ἆπις.

[t] African. & Euſeb. apud Syncell. p. 54. & 55.

[u] Cl. Alex. ſtrom. l. 6. p. 758.

[x] This is the opinion of Galen. *Introductio, ſeu Medicus.* It is diſputed, however, whether that work be really his.

ages, has made it to be imagined, that they muſt have had an exact knowledge of the internal parts of the human body. This opinion, however ſpecious in appearance, is without foundation. It might be eaſily proved, that this practice of embalming the dead, could not give the Egyptians ſo much light and inſtruction as has been imagined. An examination of what the ancients have told us concerning the manner of performing this operation, will be ſufficient to convice us that anatomy could derive no improvement from it.

They did not open the head of the dead body, but extracted the brain by the noſtrils, with inſtruments made for that purpoſe. After they had extracted the brain, they poured perfumes and aromatic compoſitions into its place. The body was opened with much ceremony. There was an officer appointed to preſide, and mark the place on the left ſide of the dead where the inciſion was to be made. The Egyptians uſed only a ſharp ſtone for performing this operation [y]. The perſon who performed it fled as ſoon as he had done his office; and all who were preſent purſued him with ſtones, as one who had incurred the public malediction. For the Egyptians regarded with horror, every one who had offered any violence to a human body [z].

From this way of thinking, it is eaſy to conclude, that theſe people did not open the bodies of the dead, with any view to learn the ſecrets of anatomy. It does not even appear that the opening which they made on theſe occaſions was very conſiderable, ſince it is ſaid, that he who extracted the intrails, did it by introducing his hand at the inciſion [a]. They took out all the inteſtines and viſcera, except the heart and the kidneys [b]. They did not replace the intrails again in the body, but, from a religious motive [c], caſt them into the Nile [d].

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[y] Herod. l. 1. n. 86.; Diod. l. 1. p. 102.

[z] Diod. ibid. [a] Diod. ibid.

[b] Ibid. What Diodorus ſays here merits ſome reflection. As to the kidneys, t was eaſy to embalm them without extraction. But the heart is under covert. It would have been neceſſary to have pierced or torn the diaphragm to have reached it, ſince we know the inciſion was in the lower belly. There is ſome difficulty in conceiving how they introduced their embalming materials into the thorax.

We muſt obſerve further, that none but the rich were embalmed, as we have been deſcribing. The manner of performing this operation upon the bulk of the people, was far more ſimple, and muſt have contributed ſtill leſs to the improvement of anatomy. They neither made any inciſion in the body, nor extracted the intrails. The embalmers filled a ſyringe with certain aromatic liquors, which they injected into the body by the anus. This compoſition had ſuch virtue and power as to conſume the inteſtines [e].

It is in vain to pretend to prove the antiquity of anatomy, from this practice of embalming among the Egyptians. We ſee plainly, that this practice would give them no light into the internal mechaniſm of the human body. Embalming was conſidered by that people rather as a ceremony of religion, than as a leſſon of anatomy [f]. We might, with much better reaſon, infer from this practice, that the Egyptians had made conſiderable progreſs in the knowledge of ſimples, as we ſhall ſee by and by.

Pliny tells us, it is true, that the kings of Egypt commanded dead bodies to be diſſected for the improvement of anatomy [g]. But what Pliny ſays, does not relate to the ancient kings of that country, but to the Ptolomys who reigned there after the death of Alexander. Theſe monarchs eſtabliſhed a medical ſchool at Alexandria, which became exceeding famous. It is to this period the anatomical diſcoveries of the Egyptians muſt be referred *.

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[c] Plut. t. 2. p. 159. B.; Porphyr. de abſtinent. l. 4. p. 380; Sext. Empiric. l. 3. c. 24. p. 184.

[d] Plut. & Porphyr. *locis cit.*

[e] Herod. l. 2. n. 87.

[f] See below, article of botany, & part 3. b. 2. chap. 2. p. 68.

The Egyptians ſeem to have had the ſame ſcruples about diſſecting human bodies as the Chineſe, who would never do it upon any, not even upon the bodies of criminals. See Lettr. édif. t. 17. p. 389. & 390. t. 21. p. 147. &c. t. 26. p. 26.

[g] L. 19. ſect. 26. p. 168.

* I take this opportunity of correcting the miſtakes of ſome authors, about that figure of a dead perſon which the Egyptians introduced at their feaſts. Herod. l. 2. n. 78.

Some have imagined that this was a real ſkeleton, which ſuppoſes the Egyptians

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ARTICLE III.

Botany.

BOtany is a ſcience which has been very much cultivated in all ages, and by all nations. Men began in good time to examine the virtues of ſimples. In the moſt remote antiquity, the art of curing diſeaſes, and even of healing wounds, conſiſted only in the application of herbs, and the uſe of their juices [h]. So high a value did ſome nations ſet on the diſcovery of the virtues of ſimples, that they aſcribed it to the gods [i].

The Egyptians were formerly conſidered as the firſt who applied to the ſtudy of botany [k]. This was a conſequence of that opinion which aſcribed the invention of medicine to that people. It is even pretended, that they had compoſed treatiſes on botany in the earlieſt ages. Amongſt that prodigious number of books aſcribed to Mercury Triſmegiſtus, ſome, it is ſaid, treated of the virtues of plants [l].

Without laying much ſtreſs on ſuch ſuſpected authorities, we have ſufficient evidence from the ſacred books, that, in

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tians underſtood oſteology. Plutarch gave occaſion to this miſtake, t. 2. p. 148. by uſing the word σκελετὸς, for what Herodotus calls νεκρὸς ξύλινος, *wooden figure of the dead.* Xylander, the tranſlator of Plutarch, has confirmed the miſtake of that author, by adding in his verſion of the word Σκελετὸν, *id eſt, exſiccata hominis atque inter ſe compacta oſſa.* This paraphraſe of Xylander is not juſt. Galen was the firſt who rendered σκελετὸς, a *skeleton, i. e.* an aſſemblage of all the human bones ſtript of every covering. For σκελετὸν σῶμα ſignifies properly *cadaver exſiccatum.*

[h] Plin. l. 25. *init.* l. 26. ſect. 6.; Hygin. fab. 274. p. 328.; Plut. t. 2. p. 646. 647.; Scholiaſt. Hom. ad Iliad. l. 11. v. 845.; Servius, ad Æneid. l. 12. v. 396.; Iſidor. orig. l. 4. c. 9. init.

[i] Plin. l. 25. p. 360. 361.

[k] Plin. l. 25. ſect. 5. p. 360. He ſupports this by the teſtimony of Homer. Odyſſ. l. 4. v. 223.

[l] In this number they reckon a book, intitled, *Of the thirty-ſix herbs of uſe in horoſcopes.* But Galen treats this as a mere fable, De ſimplic. medicam. facult. l. 6. proœm. t. 13. p. 145.

the primitive times, men entertained a high opinion of the virtues of plants. Without doubt, they had diſcovered, in the days of Jacob, that certain plants were poſſeſſed of peculiar powers and virtues. The great earneſtneſs of Rachel to obtain, from her ſiſter, ſome of the mandrakes which Reuben had brought from the fields, could proceed from nothing but a ſtrong perſuaſion of the great efficacy of that plant in curing barrenneſs. We do not now inquire whether this perſuaſion was well founded or not. It is ſufficient for our preſent purpoſe, that they then believed this plant poſſeſſed that virtue [m].

We find another proof in ſcripture, more poſitive, and as ancient, of the great progreſs botany had made in ſome countries. Moſes tells us, that, in the time of Jacob, the Egyptians were accuſtomed to embalm the bodies of the dead. This fact is more than a ſufficient proof that this people muſt have made great progreſs in the knowledge of the virtues and properties of ſimples.

The ſcripture ſays, that when Jacob died, Joſeph cauſed him to be embalmed. The ſacred hiſtorian, it is true, does not mention the particulars of this operation; but theſe may be ſupplied from profane authors. They tell us, that many aromatics, perfumes, and compoſitions of different kinds, were uſed in embalming; this, without mentioning ſeveral other preparations, neceſſarily ſuppoſes a conſiderable degree of knowledge and ſtudy [n]. Accordingly the ſcripture takes notice, that they ſpent forty days in embalming Jacob [o].
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[m] Gen. c. 30. v. 14. 15.

The word *Dudaim,* which Moſes uſes in this place, is one of thoſe whoſe true ſignification is not now known. I uſe the word *Mandrake*, not becauſe I am convinced that this is the true tranſlation of the Hebrew text. But as we are now only proving that they had then ſome idea of the virtues of plants in general, it is not neceſſary to examine the particular kind of plant Moſes deſigned. See Calmet's com. & Matth. Hillerus. This author pretends, part 1. c. 27. that *Dudaim* ſignifies *cherries*. I am rather inclined to think it ſignifies *truffles*. This plant was very well known to the ancients. See l'hiſt. de la medec. part 3. l. 2. c. 2.

[n] Herod. l. 2. n. 86. 87.; Diod. l. 1. p. 102.

The great quantity of aromatics, roſin and myrrh, which the Iſhmaelitiſh merchants, to whom Joſeph was ſold, were carrying into Egypt, were probably deſigned for embalming. Gen. c. 37. v. 25.

[o] Gen. c. 50. v. 3.

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This proves that the Egyptians had then diſcovered that this ſpace of time was neceſſary, to give the body thoſe preparations proper for drying it, and preſerving it from corruption [*].

It appears further, that this ſecret was then known only in Egypt. The ſcriptures relating the death of Sarah, Abraham, Rachel, and Iſaac, ſay ſimply, that they were buried, without one word of embalming. This is mentioned only on occaſion of the death of Jacob and Joſeph; becauſe theſe two patriarchs ended their days in Egypt. It would ſeem then, that this ſcience was peculiar to the Egyptians. It would not be difficult to point out the motives which made this people ſo ſoon apply themſelves to find out the ſecret of preſerving bodies from corruption. They were partly political, partly religious. I have ſpoke of their political motives in the article of government [p]. I ſhall now ſhew what influence religion had on this practice.

The Egyptians believed the immortality of the ſoul; but they disfigured this ſublime truth, by the doctrine of the tranſmigration of ſouls. They were of opinion, that when the ſoul was ſeparated from the body, it entered into ſome animal; from whence, after a long circuit of 3000 years, it returned again into a human body [q]. But the Egyptians imagined at the ſame time, that the ſoul remained attached to the human body, as long as that was preſerved from corruption [r]. This perſuaſion put them upon ſtudying, with great earneſtneſs, the means of preſerving bodies from corrupting, to prevent the tranſmigration of the ſouls of their friends into the bodies of different animals. They endeavoured to prolong the duration of the human frame, by removing the cauſes of its corruption [†]; and it muſt be owned, that they underſtood the art of

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It appears that afterwards this operation took up longer time. Herodotus ſays it ſometimes took 70 days. l. 2. n. 86. Diodorus ſays only it took up more than 30 days. l. 1. p. 102.

[*] We do not know certainly the compoſition uſed by the Egyptians in embalming bodies. See mem. de la acad. des ſcien. ann. 1750, hiſt. p. 53.

[p] *Supra*, b. 1. art. 4. p. 57.

[q] Herod. l. 2. n. 123.

[r] Servius ad Æneid. l. 3. v. 67.

[†] We ſhall have another opportunity of ſpeaking of this opinion in part 3. art. Pyramid.

embalming better than any other nation. For the Egyptians had learned the art of preſerving dead bodies from putrefaction, not only for a few years, but, if we may ſo ſpeak, for ever. The mummies which are brought from Egypt, are an authentic proof of this.

We ſhall enlarge no further on botany at this time. We know not which were the plants mankind made uſe of firſt. Only we may be certain, that, in the firſt ages, each people made uſe of the ſimples which their own ſoil produced, and contented themſelves with what Providence had beſtowed on the climate they inhabited *. In proceſs of time, commerce opened to mankind the different regions of the earth, and gave them the uſe of all the healing plants which it any where produced. But it was long before theſe foreign remedies were known. The commerce and intercourſe of different nations with one another was very confined in the firſt ages of the world.

ARTICLE IV.

Pharmacy.

THere are but few medicines uſed in phyſic, which do not require ſome preparation. Nature preſents the ſubſtances, but art muſt make them ready for uſe. Pharmacy, therefore, is abſolutely neceſſary for aſcertaining the preparation, compoſition, and doſes of medicines. By this art, the noxious qualities of medicines are corrected, their various virtues unfolded, and even new properties ſuperadded.

Medicines are either ſimple or compound. Simple medicines are ſuch as nature produces, without the help of art. Compound medicines are the work of art, and conſiſt of a mixture of ſeveral ſimple medicines. They are of three different kinds, which have been ranged in three claſſes or families, viz. the animal, vegetable, and mineral. Theſe are the ſubjects on which pharmacy operates; and it teaches how to prepare them, and extract from them whatever may be uſeful in medicine. Nothing but the experience of many ages could inſtruct mankind in the ſecrets of this uſeful and neceſſary art.

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* Botaniſts prove that God has made each ſoil produce ſuch plants as are moſt neceſſary and agreeable to its inhabitants. See mem. de Trev. Janv. 1702, p. 160.; Theolog. phyſiq. l. 10. p. 594. 595.

Solenander carries this matter further, and ſays, that from the plants which a country moſt commonly produces, you may gueſs what diſeaſes reign moſt in that country. Ibid. not. 25.

It is equally contrary to reaſon and hiſtory, to pretend that chymical preparations were uſed in medicine in the ages we are now conſidering. The firſt phyſicians were deſtitute of that various and extenſive knowledge, with which the moderns have enriched the art of healing. They knew nothing of the uſe of metals or minerals in the cure of diſeaſes, and were quite ignorant of all artificial preparations in medicine. It is certain, that, in ages long poſterior to thoſe we are now treating of, phyſicians knew nothing of the art of diſtillation. We find no traces of this in any of the Greek writings [r].

Beating, boiling, infuſion, the expreſſion of their juices, and even ſimple waſhing, were at firſt, and for many ages, the only preparations given to medicines, which then, for the moſt part, if not wholly, conſiſted of plants, woods, barks, and roots. The operations we have mentioned, were a ſufficient preparation for ſuch medicines.

There are not wanting, however, ſome modern authors, who, from an exceſſive fondneſs for an art which they have made the principal object of their ſtudies, imagine they can diſcern the origin and traces of medical chymiſtry in the very infancy of the world [s]. They give the honour of this invention to the Egyptians. But theſe opinions are without any evidence, and there is nothing to be found in the writings of the ancients to countenance them. Herodotus, Plato, Ariſtotle, Diodorus, Pliny, and Clemens of Alexandria, &c. who have ſo fully treated of the ſciences cultivated by the ancient Egyptians, make no mention of medical chymiſtry. This was equally unknown to the Greeks, and in general to all the nations of antiquity. It is, in a word, a ſcience abſolutely modern, and was firſt invented and cultivated by the Arabians.

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[r] See l'hiſt. de la medecine par Daniel le Clerc, part 3. l. 2. c. 2. p. 91. 92.
[s] Borrichius, Kircher, Tollius, & *plures alii.*

C H A P. II.

Mathematics.

IT is not difficult to determine, in general, which were the firſt ſciences to which men applied themſelves; but it is impoſſible to delineate, with certainty, the exact order in which they appeared. Almoſt all the ſciences have equal pretenſions to the greateſt antiquity. The importance of the ſubject, rather than any other conſideration, determined us to give the firſt place to medicine; for, if we conſult hiſtory, we ſhall find that thoſe ſciences comprehended under the name of mathematics, are at leaſt as ancient. Nor need we to be ſurpriſed at this. The objects of mathematics are no leſs intereſting to mankind, than thoſe which gave birth to medicine. The ſlighteſt attention will be ſufficient to convince us of this. Society cannot well ſubſiſt without the aid of mathematical ſtudies. What art does not require ſome knowledge in mechanics? Do not agriculture and navigation entirely depend on the obſervation of the heavenly bodies? But how could there be either aſtronomy or mechanics without arithmetic and geometry? Thoſe things then which gave birth to mathematics, are almoſt of the ſame date with the commencement of ſociety. There is even room to think that theſe ſciences were reduced into an artificial form earlier than medicine. Their principles are more ſimple and more obvious. It is true, that as the wants of mankind in the firſt ages were not very numerous, the mathematical ſciences would then be very limited and imperfect.

Arithmetic, aſtronomy, geometry, and mechanics, are ſo intimately connected, and ſtand ſo much in need of that mutual light which they adminiſter to each other, that their origin muſt have been nearly in the ſame period. Yet we may imagine that arithmetic ſomewhat preceded the other three, as they cannot diſpenſe with its aſſiſtance. For this reaſon we ſhall place it firſt.

ARTICLE I.

Arithmetic.

THough it was probably a long time before the theory of arithmetic was tolerably underſtood, yet the firſt operations of that ſcience were certainly practiſed in the moſt remote antiquity. As ſoon as mankind ſubmitted to government, and formed themſelves into regular and political ſocieties, the diſtinction of property took place, and arithmetic became neceſſary. For the inſtitution of the rights of property is as ancient as the origin of ſociety: and the moment the diviſion of lands and the diſtinction of property were introduced, the arts of numbering, weighing, and meaſuring, became indiſpenſable. Conſequently arithmetic became neceſſary in itſelf, as well as in relation to aſtronomy, geometry, and mechanics, which cannot exiſt without the ſcience of calculation. The practical part of arithmetic therefore was undoubtedly very ancient.

The motives which muſt have concurred to the improvement of arithmetic, are ſo many and ſo obvious, that it will be needleſs to inſiſt upon them. The firſt diſcoveries in the ſcience of numbers were no doubt made by the nations who ſtood moſt in need of that ſcience. The nations who firſt formed conſiderable ſtates, thoſe who applied to commerce and navigation, had the firſt and moſt frequent occaſions for the uſe of calculation. In theſe nations, the perſons employed in the management of the public revenues, found themſelves involved in long details, and would naturally endeavour to find out methods of abridging and improving the operations in which they were every day engaged. It is amongſt the firſt civilized and commercial nations, therefore, we muſt look for the origin of the ſcience of calculation.

Hiſtory agrees perfectly well with what we have now advanced. It informs us, that arithmetic was invented by the Egyptians and Phœnicians[c]; that is to ſay, that theſe two nations made the firſt improvements in the practice of the aſſemblage and calculation of numbers.

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[c] Plat. in Phœdr. p. 1240. A.; Strabo, l. 17. p. 1136. B.; Diog. Laert. in procem. ſegm. 11. p. 8.; Jambl. de vita Pythag. c. 29. p. 135.; Porphyr. ibid. p. 8. & 9.; Julian. *apud* Cyrill. l. 5.

The Egyptians muſt have been in all ages great arithmeticians. They had conſtant occaſion for the ſcience of numbers in the regulation of the government and revenues of their ſtate. Beſides this, they applied themſelves to the ſtudy of aſtronomy and geometry, as early, and perhaps with more aſſiduity than any other ancient nation. Theſe motives are abundantly ſufficient to account for the rapid progreſs this people made in the practice of calculation. It was in Egypt Pythagoras learned thoſe theories he publiſhed concerning the nature and properties of numbers.

It is not ſurpriſing, that the Phœnicians ſo ſoon diſtinguiſhed themſelves by their ſkill in calculation. For as that people applied to commerce in the remoteſt ages, they were neceſſarily very converſant in arithmetical computations, and obliged to ſtudy that ſcience, perhaps more than any other. It is natural to ſuppoſe, therefore, that they would be the firſt who made conſiderable diſcoveries in this art, and fell upon more perfect and eaſy methods in the practice of it. Ancient hiſtory confirms this, and aſcribes to the Phœnicians, the invention of the art of caſting accounts [a], of keeping regiſters, and of every thing that relates to the counting-houſe. I ſhall ſpeak of theſe things more particularly in the article of commerce.

We may reckon the Babylonians too amongſt the firſt nations who cultivated the ſcience of numbers. It is true, hiſtory ſays nothing of this; but we have the ſame reaſons to believe this of them, as of the Egyptians. The Babylonian monarchy was more ancient, and at leaſt as powerful in the primitive times as that of the Egyptians. The ſtudy of aſtronomy was common to both nations; and they are acknowledged by all antiquity, to have been the two firſt nations who applied to that ſtudy. We may ſafely rank the Babylonians, therefore, amongſt the firſt who made improvements in the theory and practice of calculation.

If it were neceſſary to confirm what we have ſaid concerning the nations who made the firſt improvements in arithmetic by the example of all other nations, hiſtory would furniſh us with materials. The Chineſe had conſiderable knowledge in the art of computation in the remoteſt times [x].

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[a] Strabo, l. 17. p. 1136. B.

It appears alſo, that the people of Peru [y] and Mexico [z], who formed the only two great monarchies in America, had made no ſmall progreſs in the ſcience of calculation. Theſe two nations had long enjoyed a regular form of policy and government, which was the true reaſon they had made ſuch great advances in the arts and ſciences.

A greater number of examples would be ſuperfluous. There never was any civilized and regularly governed nation, which had not ſome tincture of arithmetic, though we ſee that the greateſt improvements in this ſcience have been made in great empires, or by nations who enjoyed an extenſive commerce. On the other hand, ſmall ſtates who neglected commerce, made but little progreſs in the art of calculation. They hardly had any occaſion for it, and ſo could not make any great improvements in it. Theſe obſervations are confirmed by hiſtory.

Plato makes a ſophiſt ſay of the Lacedæmonians, that they ſcarcely knew how to number [a]. The meaning of this is, that this nation, who, according to Plato, were very ignorant both in geometry and aſtronomy, had made no progreſs in arithmetic. If we reflect on the conſtitution of the Lacedæmonian government, we will not be ſurpriſed at this.

Strabo relates, that the people of Albania * could never count above 100 [b]; that they had neither weights nor meaſures [c]. At the ſame time he gives us the reaſon of this, *viz.* that they had no commerce [d].

The ſtate of ſeveral nations lately diſcovered, is a convincing proof of what we have now advanced. The arithmetic of the greateſt part of the nations of America, is neither very complicated nor extenſive [e]. They know no better method to repreſent a great number or quantity, than by ſhewing a heap of ſand, or a handful of their own hair [f]. Some of them labour under a poverty of expreſſion which is almoſt incredible. A modern traveller tells us of a certain people in South America, who had no particular word for any number above three [g]. He adds, that this was not the only Indian nation which was in that condition.

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[x] Hiſt. de la Chine, par le P. Martini, l. 1. p. 38.

[y] Hiſt. des Incas, t. 2. p. 53.

[z] Acoſta, hiſt. nat. des Ind. Occid. l. 6. c. 2. 4. 7.

[a] Plato in Hipp. Maj. p. 1248. A.

* The greateſt part of this country is at preſent comprehended under the name of Dagheſtan.

[b] Strabo, l. 11. p. 767. [c] Ibid. [d] Ibid.

If it is eaſy to point out the countries where arithmetic had its birth and firſt improvements, it is extremely difficult to delineate the progreſs of its ſeveral operations. Here hiſtory affords us no aſſiſtance. We can only propoſe ſome probable conjectures concerning the manner in which mankind originally applied their knowledge of numbers to the various occaſions of civil life.

There is no more compariſon between the arithmetic of the primitive times, and that of the preſent age, than there is between the firſt huts which men built to defend themſelves from the injuries of the air, and the palaces of our preſent monarchs. The practical arts of calculation are now as perfect and expeditious as can be deſired for the benefit of ſociety;

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[e] Journ. des ſcav. ann. 1666, Avril, p. 99.; Voyage de Wafer, p. 245. & 248. Hiſt. nat. de l'Iſlande, t. 2. p. 222.; Mœurs des ſauvages, t. 2. p. 351.; Lettr. édif. t. 23. p. 314.

[f] Lettr. édif. t. 1. p. 124.; Journ. du voyage dans la Guyanne, par les P. P. Grillet & Bachamel Jeſuites, p. 95. See Dampier, t. 4. p. 245. 246.

[g] M. de la Condamine relat. de la riviere des Amazones, p. 67.

M. Condamine ſays, the *Yameos* could count only to three. This expreſſion ſeems to need ſome explanation. There may perhaps be nations who have no particular word for a greater number than three, though this is not very probable; but that there are any who cannot count at leaſt ten, and collect as many units as they have fingers, is quite incredible. The *Yameos* perhaps have no particular word to expreſs the number five, but they have certainly ſome expreſſion equivalent to this three and two. Accordingly this author informs us, that the Braſilian tongue is as defective as that of the Yameos in arithmetic; but that the people of Braſil borrow the Portugueſe language to expreſs numbers above three, from which it is very evident they wanted not the ideas of greater numbers. I am of opinion, that we ought to form the ſame judgment of the Yameos. It is the more probable that they had ideas of greater numbers than three, that the word they uſed to expreſs that number would naturally ſuggeſt the idea of nine by the ſyllables which compoſed it. *Poetarrarorincouroac*, is the word the Yameos uſed to expreſs three.

and the theory of this ſcience ſeems to be carried to as great a height as the human faculties are capable of attaining.

Modern arithmetic, therefore, can give us no juſt idea of the ancient, till, by an exact analyſis, we have reduced it to its firſt principles. This is the only method of diſcovering thoſe operations, which on account of their ſimplicity would preſent themſelves firſt to the human mind.

This analyſis is not near ſo difficult as it may appear at firſt ſight. If we examine the principles of this ſcience with attention, we ſhall find, that its moſt ſublime ſpeculations and ingenious practices depend on two very ſimple operations, *viz.* addition and ſubtraction. In effect, multiplication is nothing but the addition of equal numbers; and the compoſition of powers may be reduced to the multiplication of a number by itſelf, either more or leſs repeated. Diviſion and the extraction of the roots bear the ſame relation to ſubtraction. It is unneceſſary to explain this any further at preſent. It is in addition and ſubtraction we muſt look for the origin of arithmetic, or the art of working upon numbers.

Addition and ſubtraction preſuppoſe numeration, which ſome have very improperly conſidered as a diſtinct operation. For numeration, properly ſpeaking, is nothing but the common ſource which furniſhes arithmetic with the materials of all its operations. To number, is nothing elſe but to form ideas of different aſſemblages of unities, and to aſſign a name to each of theſe aſſemblages. This is the firſt ſtep of the human mind in the ſcience of numbers.

Every particular object ſuggeſts the idea of unity to the mind, and every aſſemblage of objects or units ſuggeſts the idea of numbers, or of a greater or leſſer quantity of units. However ignorant the greateſt part of mankind became after the confuſion of tongues and the diſperſion of families, they could never become ſo ſtupid as not to diſtinguiſh the objects which ſurrounded them. The diſtinct ideas of ſimple numbers could never be loſt; the moſt barbarous people would ſtill be ſenſible of the numerical relations and proportions of their hands, their feet, their fingers, &c. The fundamental notions of arithmetic, therefore, muſt have been familiar in the rudeſt ages.

It appears to me equally certain, that the moſt ignorant and ſavage nations have always had ſome words to expreſs theſe fundamental notions. Thus, in all ages and in all places, mankind have had ſome knowledge of arithmetic proportioned to their occaſions and way of life.

Arithmetic probably began with practical numeration. I call the art of determining the number of ſeveral objects, practical numeration, of counting, for example, how many heads are in a flock, or how many trees are in a field, &c. Provided ſuch a collection of units is conſiderable, we cannot determine with exactneſs, the ſum total by a glance of the eye. Our ſenſes on theſe occaſions ſuggeſt only a confuſed idea of multitude and quantity. To render this idea clear, and to fix it to one number rather than another, after examining the objects one after another, it would be neceſſary to make uſe of reaſon, and to have recourſe to memory. Both theſe faculties are ſo imperfect in the bulk of mankind, that it would be neceſſary to aſſiſt them by the uſe of ſenſible external ſigns. The neceſſity of providing ſuch ſigns would ſoon be perceived. The inſtitution of theſe ſigns, indeed, is an arbitrary thing; but ſtill it muſt be owned, that there are ſome more natural and more commodious than others. Conſequently, men would be determined in the choice of them, at leaſt by conſiderations of conveniency.

Nature has provided us with a kind of arithmetical inſtrument, more generally uſed than is commonly imagined; I mean our fingers *. Every thing inclines us to think, that theſe were the firſt inſtruments uſed by men to aſſiſt them in the practice of numeration. We may obſerve in Homer [b], that Proteus counts his ſea-calves by fives and fives, that is, by his fingers. Several nations in America have at this day

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* We may ſee in M. Crouſaz's arithmetic demonſtrated, a very ingenious method of multiplying by one another the numbers not above nine, by the help of the fingers, which formerly ſupplied the place of Pythagoras's tables.

[b] Odyſſ. l. 4. v. 412.

Homer uſes the word πεμπαζεῖν, which ſignifies to aſſemble by five and five. Plutarch and ſeveral lexicographers tell us, that in the infancy of the Greek language they had no other word for calculating. It then ſignified what is now expreſſed by the term ἀριθμεῖν.

no other inſtruments of calculation [i]. It was probably the ſame in the primitive ages. It is another ſtrong preſumption of the truth of what I now advance, that all civiliſed nations count by tens, tens of tens, or *hundreds*, tens of hundreds, or *thouſands*, and ſo on, ſtill from ten to ten. We can diſcover no reaſon why the number ten ſhould be choſen rather than any other, for the term of numeration, except this primitive practice of counting by the fingers, which are ten in number *.

It appears then highly probable, that the firſt men counted by their fingers, whatever did not exceed their number. Above ten they would count the number of times they were obliged to recommence their decimal numeration, to exhauſt the ſubject of their calculation, beſides what remained when the total did not make an exact number of tens. But as their fingers could only ſerve them to aſcertain that remainder of units, they wanted ſomething to determine the number of tens. When this number was too great for the memory to retain with eaſe, they were obliged to look for new helps. Nature preſented them with ſeveral things equally proper to aſſiſt them in this operation, as grains of ſand, corn, pebbles, ſtones of fruit, &c. Several ſavage nations [k] in both continents practiſe theſe methods at this day, and we find the veſtiges of theſe original practices among the moſt ancient nations [l].

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[i] Voyage de Dampier, t. 4. p. 140.

* It is eaſy to prove this. For if numeration, for example, recommenced from five to five, and not from ten to ten, multiplication would become much eaſier. All the difficulty of this operation conſiſts in remembering the product of the numbers under the term of numeration. Now, every body knows that four times four is ſixteen, which is the moſt difficult caſe in the pentenary arithmetic I am now ſpeaking of; but many people would be puzzled to tell, that ſeven times nine is ſixty-three. I might make ſeveral other ſuppoſitions equally favourable to what I have advanced. The binary arithmetic of Mr Leibnitz, in my opinion, fully clears up this point.

Ariſtotle, prob. ſect. 15. t. 2. p. 752. informs us, that, in his time, there was a nation in Thrace, who knew no other arithmetic but the quaternary. The reaſon he gives for this, confirms what I have ſaid. "That people," ſays he, "have no better memories than young children." It would have been impoſſible for ſuch a people to have got by heart the multiplication-table of Pythagoras.

[k] Voyage de Dampier, t. 4. p. 246.; Mœurs des ſauvages, t. 1. p. 517.

[l] See Herod. l. 2. n. 36.

What I have been ſaying concerning the origin of practical numeration, may, I think, enable us to conceive how it was improved and brought to perfection. It is eaſy to imagine, how by the help of their fingers and a few little ſtones, men might perform conſiderable calculations. We need only follow the hints which I have given, and enlarge the plan which I have marked out. If it is demanded, for example, how theſe primitive arithmeticians managed when they were to count a great number of objects, which obliged them ſeveral times to recommence the decimal numeration; I anſwer, that it ſeems probable, they marked tens of units by one ſymbol, and ten times ten, or each hundred, by another. Perhaps they expreſſed tens by white ſtones, and hundreds by ſtones of another colour. After this diſcovery it would not be difficult to contrive ſymbols for expreſſing tens of hundreds, or thouſands, &c. &c.

Perhaps the firſt arithmeticians might make uſe of ſymbols of the ſame colour, to expreſs tens, hundreds, &c. only obſerving to place them ſo with regard to one another, as to determine their relative value, as we do with our cyphers which have different values, according to the rank they hold and the place they occupy. By ſuch means mankind might carry the practice of numeration further than their neceſſities and way of life required.

The invention of theſe methods of numeration I have been ſpeaking of, would naturally lead men to the knowledge of addition. As ſoon as they knew how to number with facility a collection of objects, let it be never ſo great, it would require no great effort to number ſeveral of theſe together, that is to ſay, to add them. They had nothing to do but to place the ſymbols of their ſeveral numbers under one another, ſo as to have their units, their tens, and their hundreds, &c. under their eye at once, and then to reduce all theſe ſeveral ſymbols into one. They would not be long in diſcovering the art of performing this reduction. They had only to ſum up ſeparately

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It is probable that pebbles were originally moſt uſed in arithmetical operations. The word *calculation*, which we derive from the Romans, probably refers to the uſe of little ſtones in ſuch operations. It is the ſame in Greek. The word ψηφίζω, which comes from ψῆφος, a little ſtone or flint, ſignifies, among other things, *to calculate.*

firſt their units, then their tens, and then their hundreds, &c. and to form the ſymbol of each of theſe ſums, as they diſcovered them; to do that, in a word, by parts which the weakneſs of our faculties will not permit us to do at once.

If it was not difficult, as we have ſeen, to proceed from the practice of numeration to addition, it was ſtill more eaſy to find out the art of multiplying one number by another. There is reaſon to think, that multiplication was at firſt performed by means of addition. The ſteps of the human mind are naturally ſlow. It requires no little time and labour to paſs the medium which divides one part of ſcience from another, however analogous they may ſeem to be. At firſt, therefore, it is probable multiplication and addition made but one operation. Had they, for example, to multiply 12 by 4, they formed the ſymbol of 12 four times, and then reduced theſe four ſymbols into one by the rules we have juſt laid down.

But this method of multiplication by addition muſt have been very tedious and perplexing, when either of the numbers to be multiplied was conſiderable. If they were only to multiply 15 by 13, they had to make the ſymbol of 15 thirteen times, and then to ſum up theſe 13 ſymbols. Thoſe who were moſt practiſed in calculation, would ſoon diſcover that they might abridge this operation, by forming the ſymbol of 15 three times, and once that of 150, which is the product of 15 by 10, and then ſum up theſe four ſymbols. Such was probably the firſt ſtep of the human mind towards multiplication, properly ſo called, or the art of adding equal numbers with greater facility and expedition. This operation, however, could never be performed with eaſe, till thoſe who practiſed calculation had by heart the product of all the numbers under ten.

The account I have here given of the origin of numeration, addition, and multiplication, is ſo particular, that I hope I may be excuſed from mentioning my conjectures concerning the manner in which theſe operations gave birth to ſubtraction and diviſion. I will not deprive the reader of the pleaſure of exerciſing his own imagination, in finding out the methods which men at firſt uſed in decompounding numbers, after they had found out the art of uniting and collecting them by addition and multiplication. Diviſion is undoubtedly the moſt difficult of all the ſimple operations in arithmetic; it would therefore be the laſt diſcovered, and not till after ſociety had attained a ſolid form.

I ſhall conclude with obſerving, that probably the language of arithmetic in the firſt ages was not very copious. I do not imagine, that originally men had particular words for expreſſing any number above ten. Suppoſe, for example, they had a mind to expreſs 127, they ſaid, ten times ten, two tens and ſeven; or rather ſeven two tens, and ten times ten; for it appears, that the ancient manner of expreſſing numbers was directly contrary to the preſent. They always began with expreſſing their units, next their tens, then their hundreds, &c. This practice appears plainly in the Hebrew text of the ſcriptures, in Herodotus[m], and even in ſome later authors. In theſe we perceive the primitive manner of expreſſing numbers, by beginning with the moſt ſimple quantities; a manner very analogous to the primitive way of numbering, and perhaps the moſt agreeable to the common procedure of the human mind, from the more ſimple to the more compound.

I do not know but we might even go a little further, and doubt whether originally they had proper names for all the numbers which are not above ten. The way in which ſome nations at preſent expreſs thoſe numbers which contain more than five units, ſeems to countenance this doubt. The greateſt part of the American nations count by fives, and have no proper name for any number above two. If theſe people have occaſion to expreſs the numbers, three, four, or five, they ſay, two and one, two and two, two, two, and one[n].

The metaphyſical connection of the ſeveral operations of arithmetic, has eſtabliſhed among them a kind of continuity, which has forced me to repreſent them as ariſing ſucceſſively one from another. I could not make any certain interval between the practice of one of theſe operations, and the invention of that which immediately follows. But all this is only a ſyſtematic order and connection. I am far from thinking, that the erection of ſuch an edifice as we have been deſcribing, did not ſuffer any interruption. I have only ſaid what I thought moſt probable, and conſulted the light of reaſon, for want of that of hiſtory, which entirely fails us on this occaſion.

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[m] See Herod. l. 7. n. 184. &c.

[n] Lettr. édif. t. 23. p. 318.; Voyage de J. de Lery, p. 307.

We cannot however, doubt, but ſome of the operations we have been ſpeaking of, were known in the ages now under conſideration. The balance and weights were uſed in the moſt remote antiquity. The ſcriptures tell us, that Abraham bought the field where Sarah was buried, for 400 ſhekels of ſilver, which he weighed before the whole people [o]. They uſed then, it is evident, pieces of metal, whoſe value in commerce was determined by their weight. This is a clear proof, that they had already made conſiderable progreſs in arithmetic. For, without this ſcience, the invention of weights and balances could have been of no ſervice. The uſe of theſe meaſures requires more complicated operations in numbers than ſimple addition.

After having ſpoke of the origin and firſt improvements in arithmetic, I imagine it will not be improper to inquire what were the characters anciently uſed for recording the reſult of their arithmetical operations,

The invention of numerical characters muſt have been very ancient. For though flints, pebbles, and grains of corn, &c. might be ſufficient for making arithmetical calculations, they were by no means proper for preſerving the reſult of them. The leaſt accident would be enough to diſcompoſe ſuch moveable ſigns, and deſtroy in one moment the fruit of a long and laborious application. It was however neceſſary on many occaſions to preſerve the reſult of arithmetical operations, and conſequently it was neceſſary very early to invent ſigns or characters for that purpoſe. Alphabetical writing was not of the firſt antiquity [p]; they muſt, therefore, have ſupplied the want of it by ſome other means. This is what we are now to examine: let us begin with the Egyptians.

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[o] Gen. c. 23. v. 16.

[p] See ſupra, b. 2. c. 6.

The writings of ancient authors give us but little light into the Egyptian manner of performing arithmetical operations. Herodotus alone has taken notice of this matter. This author ſays, that the Egyptians, as well as the Greeks, made uſe of little ſtones in theſe operations; but with this difference, that the Greeks ranged their counters, if we may ſo call them, from left to right, and the Egyptians theirs from right to left [p]. This, by the by, was a natural conſequence of the different arrangement of their characters in writing. I have ſpoke of that in the preceding book [q].

But this paſſage of Herodotus gives us no light into the matter we are now upon. For, in the firſt place, this author ſays nothing of the form of arithmetical characters among the Egyptians. Beſides, the times he ſpeaks of were greatly poſterior to thoſe we are now examining. Yet we have reaſon to doubt, that the Egyptians had invented arithmetical characters before they knew the uſe of letters. Let us ſee if we can ſupply the want of hiſtorical information by ſome conjectures founded on the ancient monuments of that nation which are ſtill remaining.

The obeliſks muſt undoubtedly be ranked amongſt the moſt ancient monuments of the Egyptians. We know that theſe magnificent pillars are covered with various figures, which appear to us extremely odd and whimſical. Theſe figures, known by the name of hieroglyphics, were the ancient writings of the Egyptians [r]. We know further, from the teſtimony of Diodorus, Strabo, and Tacitus, that the kings who raiſed theſe obeliſks, had commanded the weight of the gold and ſilver, the number of arms and horſes, the quantity of ivory, perfumes, and grain, which each nation ſubject to the Egyptians was obliged to pay, to be marked upon theſe monuments [ſ]. It is then certain, that ſome of the figures upon theſe obeliſks were deſigned to expreſs numbers. The queſtion is, to determine which were theſe numerical marks, and from thence to judge what were the arithmetical charac-

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[p] Herod. l. 2. n. 36. [q] Chap. 6. p. 182. & 183.

[r] See *ſupra*, l. 2. c. 6.

[ſ] Diod. l. 1. p. 67; Strab. l. 17. p. 1171. A.; Tacit. ann. l. 2. n. 60.

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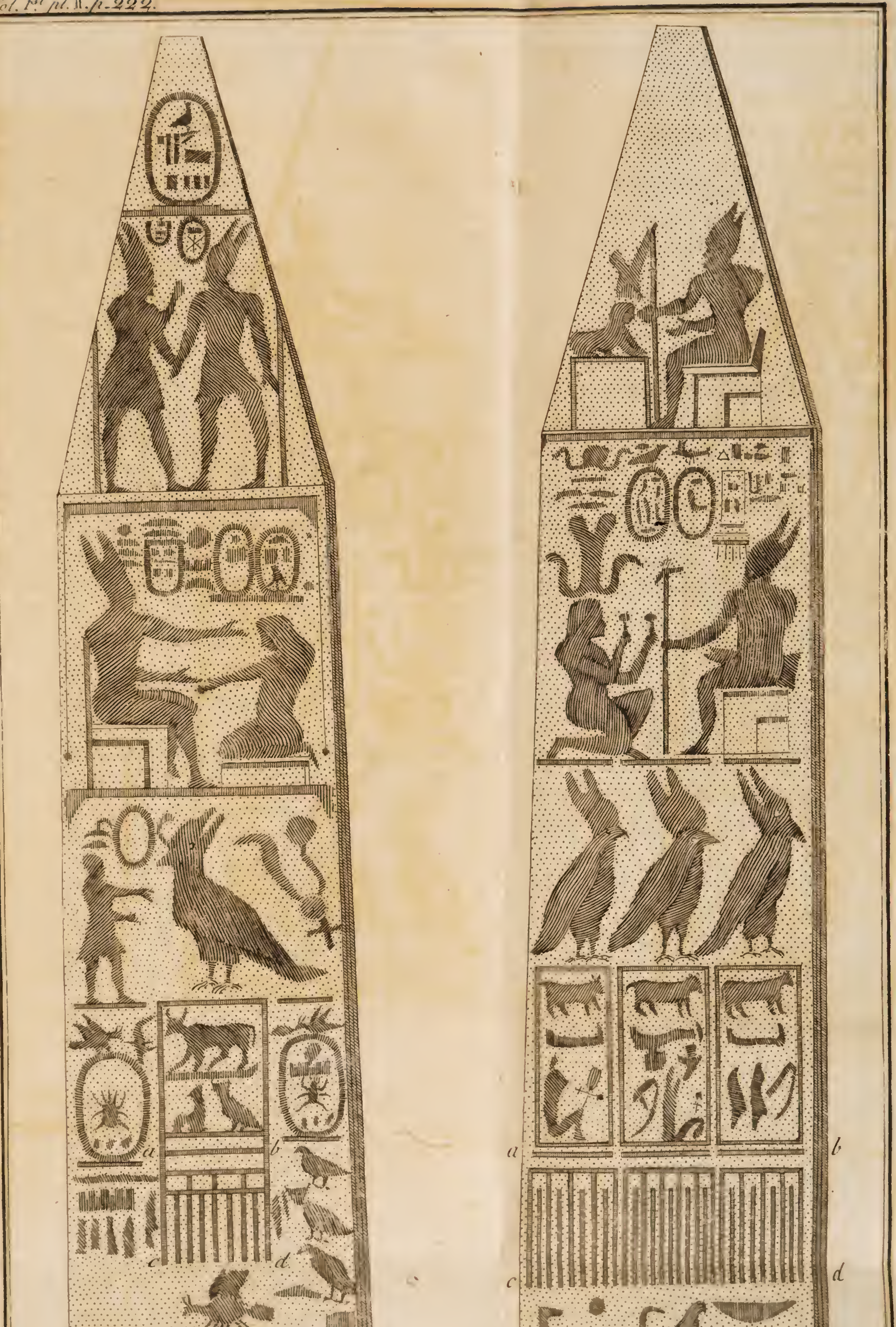

J. Phinn Sculp.

The Perpendicular & transverse lines a. b, c, d. are probably numerical Symbols.—

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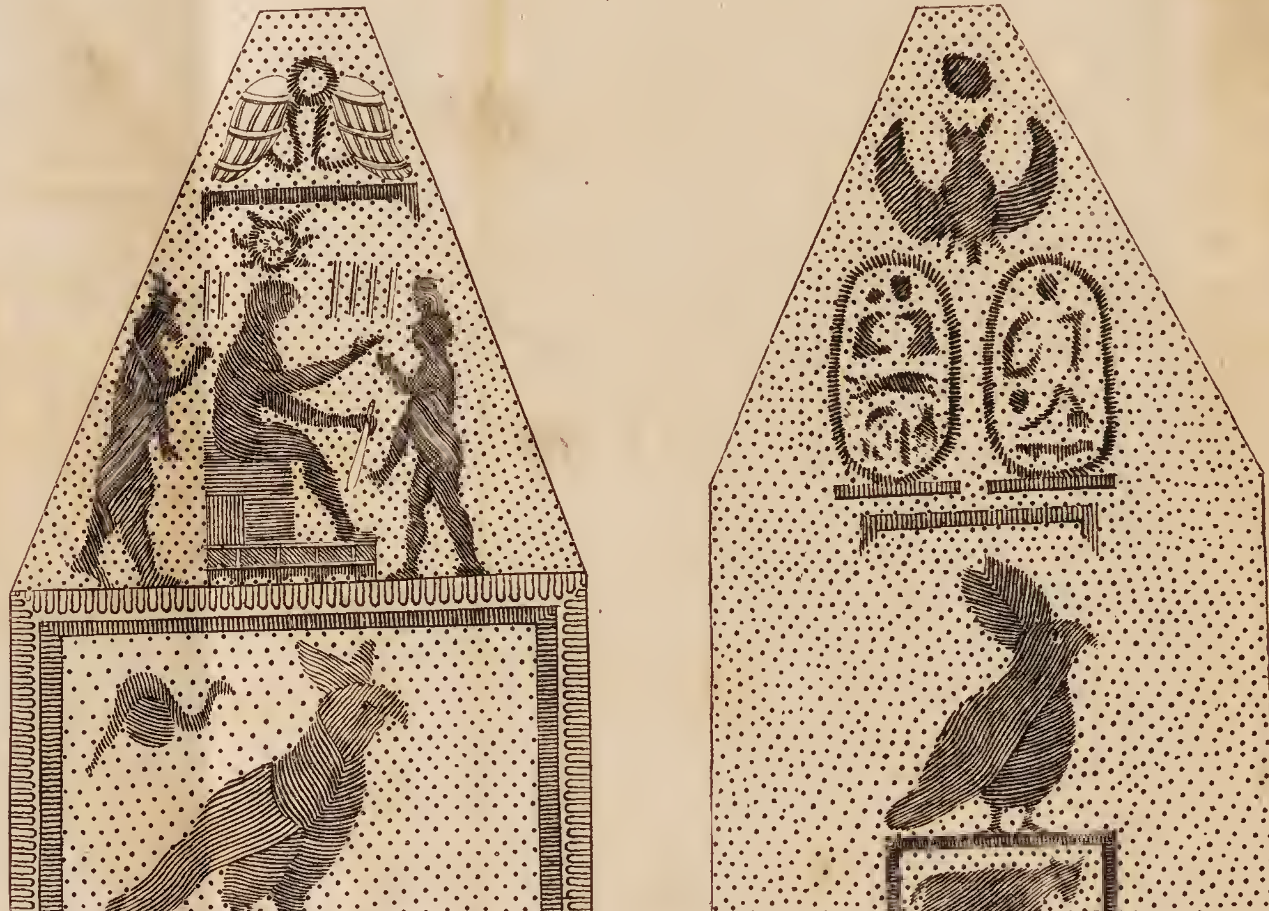

T. Phinn Sculp^t.

The perpendicular & transverse lines. a.b.c.d. are probably numerical Symbols.

ters of the Egyptians, before they knew the uſe of letters. I ſhall propoſe the conjectures of one of the moſt judicious critics of the preſent age, on this queſtion.

Towards the top of moſt part of the obeliſks, we diſcover nine perpendicular lines, with ſome horizontal lines placed above them. M. Bianchini imagines that theſe nine lines are numerical characters. This thought was ſuggeſted to him by the reſemblance he fancied he remarked between theſe lines, and the diſpoſition of thoſe which ſerve for arithmetical columns, in that table publiſhed by Velſer, and in that which the Chineſe aſcribe to Lixeus. He was confirmed in this opinion by the teſtimony of the authors I have now mentioned, and of Hermapion and Ammianus Marcellinus. Theſe were the reaſons which made M. Bianchini ſuppoſe that the Egyptians uſed theſe lines to expreſs all kinds of numbers [t].

From one to nine, ſays he, there is no difficulty, but to place a ball or point underneath one of the nine perpendiculars, to repreſent ſo many pounds of gold, according to the place of that perpendicular, counting from right to left. Suppoſe, for example, that the point was under the fifth line, that expreſſed five pounds of gold; if it was under the ſeventh, it expreſſed ſeven. The numbers above nine might be repreſented by means of the horizontal lines placed above the perpendicular. The horizontal lines probably determined the perpendicular ones to ſignify tens, hundreds, thouſands, &c. inſtead of units, according as the number of theſe tranſverſe lines were one, two, three, &c *.

An

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[t] La iſtoria univ. p. 106. &c.; Eſſai ſur les hierogl. des Egyptiens, p. 612. note [d].

* M. Bianchini propoſes ſome examples to confirm theſe conjectures. Let us ſuppoſe, ſays he, that the Egyptians had a mind to repreſent, that a prince undertook an expedition in the ſeventh year of his reign. They might draw a bee, (the emblem of a king, according to Ammianus Marcellinus), with wings extended, and make it anſwer to the ſeventh perpendicular line. If they were to expreſs that Lybia paid yearly 70 pounds of gold, they had only to draw one tranſverſe line, and put a proper ſign above the ſeventh perpendicular. Then the ſign which would have expreſſed only 7 units without the tranſverſe line, by means of that line would expreſs 7 times ten. By increaſing in this manner the number of theſe tranſverſe lines, they might expreſs 7 hundreds, 7 thouſands, &c. To ſhew that theſe numbers repreſented ſo many pounds of gold or ſilver, they might place under the numerical ſign, the hieroglyphic which repreſented gold or ſilver. The ſame may be ſaid

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An arithmetic of this kind, compoſed of perpendicular and tranſverſe lines, was the origin of the numerical figures both of the Greeks and Romans. Units in the primitive operations were repreſented by lines drawn perpendicular, like the letter I in our alphabet [u]. There is reaſon to believe, therefore, that the Egyptians uſed theſe nine lines, which we find on their obeliſks, rather than any other kind of characters, to expreſs numbers, eſpecially as we know that the ancients uſed only theſe two kinds of ſigns, perpendicular and tranſverſe lines, in arithmetic *.

The Egyptians were not the only people who found means to preſerve the reſult of their arithmetical operations, without the knowledge of letters. I have ſpoke in the preceding book of the quipos of the Peruvians. This was, as we have heard, a kind of fringe, compoſed of threads, or cords of different colours, loaded with a certain number of knots. Theſe quipos, by the combinations of their knots and colours, ſerved the Peruvians for books, and for regiſters of their ſubdiviſions, taxes, and, in a word, of all their arithmetical operations [x]. From the monuments of the Mexicans, which are

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of the numbers of ſoldiers, of preſents, &c. as alſo of years, months, days, when they were recording aſtronomical obſervations.

The inſpection of the obeliſks inclines us to think, that theſe ſigns were ranged from top to bottom; from whence it will be natural to conclude, that the hieroglyphic writing of the Egyptians was alſo diſpoſed in this manner, and formed perpendicular columns. This ſeems very probable; for the Chineſe, the greateſt part of the people of India, and ſeveral other nations, have obſerved, and ſtill obſerve this order in the diſpoſition of their letters. They do not place their words horizontally, as we do, but beginning at the top, they write to the bottom in a ſtraight line. This may be conſidered as a relic of hieroglyphic writing.

[u] Bianchini, *loco cit.* p. 112.

* This confirms what we ſaid above, that the origin of cyphers or numerical characters was confounded with that of hieroglyphic writing. To this day the Arabian cyphers are real hieroglyphics, and do not repreſent words but things. For which reaſon, though the nations which uſe them ſpeak different languages, *i. e.* expreſs themſelves in different ſounds, yet theſe characters excite the ideas of the ſame numbers in the minds of all.

[x] Hiſt. des Incas, t. 2. p. 53.

It is the ſame with the negroes on the coaſt of Juida. They know nothing of the art of writing, and yet they can calculate the largeſt ſums with great facility, by means of cords and knots, which have their own ſignification. Hiſt. gen. des voyages, t. 4. p. 283. 373. & 394.

ſtill remaining, it appears, that hieroglyphics were uſed by that people, both for letters and numerical characters [y].

Finally, I do not imagine that the wiſeſt and moſt civilized nations had carried their diſcoveries in arithmetic beyond the four operations of addition, multiplication, ſubtraction, and diviſion, in the ages now under conſideration. Men are only induſtrious in proportion to their wants. The ſocieties which were formed in the ages immediately after the confuſion of tongues and diſperſion of families, did not probably derive all the advantage from the arithmetical ſymbols they had invented, they might have done. The calculations they had then occaſion to make, could not be very extenſive. The four firſt rules of arithmetic would be ſufficient to anſwer all their purpoſes. We may even affirm of theſe firſt arithmeticians, that it was rather the uſe than the ſcience of numbers, that they were acquainted with. The invention of theſe four rules was a great deal for 700 years. We could mention ſeveral ſciences, which, every thing conſidered, have not made ſuch rapid progreſs.

ARTICLE II.

Aſtronomy.

WE muſt never hope to be able to determine with certainty the preciſe time when men began to ſtudy the courſe of the ſtars. The origin of aſtronomy, if by this expreſſion we underſtand the firſt obſervations which were made on the motions of the heavenly bodies, is loſt in the abyſs of antiquity. We ſee from the ſacred books, that, in the very firſt ages, men muſt have had ſome method of meaſuring time. The calculation which Moſes gives us of the length of the firſt patriarchs lives, and the manner in which he deſcribes the circumſtances of the deluge, leave us no room to doubt of this. The memory of theſe things was undoubtedly preſerved by the poſterity of Shem, otherwiſe Moſes could not have informed us of the facts I have mentioned.

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[y] Acoſta, hiſt. nat. des Indes Occident. l. 6. c. 7.

Theſe remains of aſtronomical knowledge, however, which might eſcape the deluge, could not be of much ſervice to the bulk of the deſcendents of Noah. I have already repreſented the effects which the confuſion of tongues and diſperſion of families produced in the ſeveral regions of the earth [z]. If the arts periſhed in theſe tranſmigrations, we have ſtill greater reaſon to believe that the ſciences would be entirely loſt. The deluge ſeems to have ſwept away every monument of the arts and ſciences from all mankind, except Noah, and a few of his deſcendents, who continued in the place where that patriarch had ſettled after he left the ark [a].

Neceſſity ſoon obliged the new inhabitants of the earth to ſtudy the courſe of the ſtars. The operations of agriculture are regulated by the obſervation of the ſeaſons. Navigation depends on the motions and revolutions of the heavenly bodies. Nothing but the diviſion of time into years, months, &c. could introduce order into the affairs of civil ſociety, and diſtinguiſh the ſeaſons deſtined to religious ſolemnities [b]. Men would ſoon apply therefore to the ſtudy of a ſcience of ſuch general utility. Yet as there is no ſcience which depends ſo much on the length of time as aſtronomy, it muſt have been very long before it arrived at any great perfection.

The nations who were firſt ſettled under a regular form of government, would make the firſt improvements in this ſcience. The advantages of a ſettled ſtate and happy ſituation, would enable them to make the earlieſt and the greateſt progreſs in this kind of knowledge. In Egypt and ſeveral parts of Aſia, the air is perfectly pure and ſerene almoſt through the whole year; this gave their inhabitants a favourable opportunity of contemplating the heavens, and obſerving the various motions of the ſtars, and of repeating the ſame obſervations as often as it was neceſſary. If mens talents are unfolded in proportion to the opportunities they have of exerciſing them, how many aſtronomers would appear in Egypt, Chaldea, and Arabia [c], countries ſo happily ſituated for the ſtudy of that ſcience? Accordingly the Babylonians and Egyptians were more famous than any other ancient nations, for their ſkill and conſtancy in obſerving the motions of the heavenly bodies [d].

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[z] *Supra*, l. 1. p. 3.

[a] Ibid.; Academie des ſciences, t. 8. p. 1. & 2.

[b] Ibidem.

Every thing contributed to the improvement of aſtronomy among the Babylonians. The great antiquity of their government [e], the beauty of their climate, the ſituation of Babylon, in the midſt of an immenſe plain, open on all ſides, affording an unbounded proſpect, the moſt proper for aſtronomical obſervations [f].

The way of life too of the firſt inhabitants of Chaldea favoured the progreſs of aſtronomy. Tending their flocks was one of their chief employments. Agriculture too was practiſed by them in very early times [g]; ſo that paſſing the greateſt part of their days and nights in the open fields, they had the various motions of the heavenly bodies conſtantly in view.

We may add further, that never any nation had ſo great occaſion for the knowledge of aſtronomy, as the people of Chaldea. Theſe countries conſiſt, for the moſt part, of immenſe plains, where looſe ſands, driven about by the winds, leave no traces of any road. The ſtars, therefore, are their only guides in their journeys, eſpecially as the exceſſive heat of the climate does not permit them to travel in the daytime [h].

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[c] Acad. des ſcien. ann. 1742, h. p. 31.

[d] Plato, in Epinomi. p. 1012.; Ariſt. de cœlo, l. 2. c. 12. t. 1. p. 464.; Plin. l. 7. ſect. 57. p. 416.; Clem. Alex. ſtrom. l. 1. p. 361.; Achill. Tat. ad Arati phæn.; *init.* Jamblic. de vita Pythag. c. 29. p. 135.

[e] Gen. c. 10. v. 10.

[f] *Principio Aſſyrii, propter planitiem magnitudinemque regionum quas incolebant, cum cœlum ex omni parte patens & apertum intuerentur, trajectiones motuſque ſtellarum obſervarunt.* Cicero de divinat. l. 1. n. 1. t. 3. p. 3.

We may obſerve, that the plain called in ſcripture *Shinar*, where Babylon was built, is the ſame which the Arabians call *Sin-Jar*. Almamon, the ſeventh Caliph of the Abaſſides, cauſed aſtronomical obſervations to be made in this place, which ſerved all the aſtronomers of Europe for ſeveral ages. Gelaleddin Melik-Schah, the third Sultan of the Seljukides, cauſed the ſame to be done in the ſame place near 300 years after. Acad. des inſcript. t. 1. m. p. 5.

[g] *Supra*, l. 2. chap. 1. p. 86. & 87.

[h] Voyage des Ind. orient. par Carré, c. 1. p. 230.

The Chaldeans too have been eſteemed by all antiquity the inventors of judicial aſtrology. This vain and ridiculous ſtudy would oblige them to find out methods of determining the motions and aſpects of the ſtars. Without the knowledge of theſe things they could not draw their horoſcopes. So that aſtronomy owes its greateſt improvements to this frivolous art of reading the fates of men in the face of heaven *.

After theſe reflections, it will not appear ſurpriſing, that the Chaldeans were ranked among the firſt obſervers of the heavenly bodies. Belus, one of the firſt kings of Babylon, is even conſidered as one of the inventors of aſtronomy [i]. But there are no monuments of theſe ancient diſcoveries now remaining. They tell us, it is true, of a courſe of aſtronomical obſervations ſent to Ariſtotle from Babylon, by Calliſthenes who attended Alexander in his expedition. This comprehended, as they pretend, a ſpace of 1907 years, from the commencement of the Babylonian monarchy to the expedition of Alexander into Aſia [k]. According to this calculation, the Chaldeans made their firſt aſtronomical obſervations in the year 115 after the flood.

But this ſtory deſerves no credit. It was firſt publiſhed by a very modern writer, Simplicius, a Peripatetic philoſopher, who flouriſhed only in the ſixth century of the Chriſtian æra. This commentator does not even pretend to have found this ſtory in any of Ariſtotle's writings; he took it from Porphyry, a Platonic philoſopher, not much more ancient than himſelf †. Theſe authorities are too modern to merit any regard. Hipparchus and Ptolomy, who lived long before Porphyry and Simplicius, knew nothing of theſe pretended obſervations, though they had made a very diligent ſearch after the writings of the moſt ancient aſtronomers, They could meet with no

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* Kepler very juſtly obſerves, that aſtrology is the fooliſh daughter of a wiſe mother, and that, for 100 years paſt, this wiſe mother could not have lived without the help of her fooliſh daughter. Præfat. ad tabul. Rudolphin. p. 4.

[i] Plin. l. 6. ſect. 30. p. 331.; Solin. c. 56. *init.*; Achill. Tat. ad Arat. phæn. *init.*; Mart. Capella, l. 6. de Babyl. p. 225.

[k] Porphyr. *apud* Simplic. *in* l. 2.; Ariſtot. de cœlo, fol. 123. *recto*, lin. 18.

† Porphyry lived in the third century, and was a modern in compariſon of the times we are treating of.

obſervations made at Babylon before the reign of Nabonaſſar [l]. We may take it for granted, therefore, that we have no authentic information of the ſtate of aſtronomy at Babylon before the reign of that prince, who mounted the throne in the year 747 before J. C.; every thing preceding this is only vague tradition, about which we can form no certain judgment [m].

What I have ſaid concerning the motives which occaſioned the firſt improvements in aſtronomy among the Babylonians, may very well be applied to the Egyptians. They were equally infatuated with judicial aſtrology [n], had the ſame advantages in the antiquity of their monarchy, their early application to agriculture [o], and the beauty of their climate. In this reſpect the Egyptians were even more happily ſituated than the Chaldeans. Being placed pretty near the equator, they could diſcover the greateſt part of the ſtars, and the revolutions of the heavenly bodies would not appear ſo oblique to them, as to the Chaldean aſtronomers. We may add to all theſe conſiderations, that high reliſh and conſtant application to all the ſciences with which the Egyptians were endowed.

We have ſomewhat better information of the ancient aſtronomical diſcoveries of the Egyptians than of the Chaldeans. It is acknowledged by all antiquity, that they were the firſt who gave a certain form to their year [p]. They divided it, ſays Herodotus [q], into twelve months, by the knowledge they had of the ſtars. Theſe months, at firſt, had no particular names, but the firſt month, the ſecond month, the third month, &c [r].

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[l] See Marſham. p. 474.

[m] See les mem. de Trev. Janv. 1706, art. 8.

[n] Herod. l. 2. n. 82.; Cicero de divinat. l. 1. n. 1. t. 3. p. 4.; Plut. t. 2. p. 149. A.

[o] *Supra*, l. 2. chap. 1. p. 86. & 87.

[p] Clem. Alex. ſtrom. l. 1. p. 361.; Joſ. antiq. l. 1. c. 3.; Macrob. Saturn. l. 1. c. 12. p. 242.; Lucian. de aſtrolog. p. 362.

[q] L. 2. n. 4.

[r] See les mem. de l'acad. des inſcript. t. 14. m. p. 334.

We may be convinced of this, by the manner in which Moſes, who was well verſed in aſtronomy, relates the circumſtances of the deluge. He gives the months no other names, but the ſecond, ſeventh, tenth, and firſt months. Gen. c. 7. & 8.

It is impoſſible to determine the form and duration of the original Egyptian year of twelve months, whether it was at firſt only a lunar year, conſiſting of three hundred and fifty-four days, or whether it conſiſted of 360, from the time of its firſt inſtitution. We know only, that the year of 360 days was of great antiquity in Egypt, and had been uſed before the age of Moſes. This is evident, becauſe it is by this year that legiſlator reckons the years of the world, and particularly of the deluge [ſ].

The facts which are recorded in hiſtory on this ſubject, are ſo few, and ſo general, that they cannot enable us to form a judgment of the ſtate of aſtronomy in theſe remote ages we are now examining. We are not informed of the methods originally uſed for diſcovering and meaſuring the courſe of the ſtars, nor of the ſucceſſive improvements made in this ſcience. Let us, however, endeavour, by collecting all the little light we have, to form ſome probable conjectures about the beginnings of this ſcience, at all times ſo neceſſary and uſeful to ſociety.

We have reaſon to believe, that the inſtitution of that ſhort period of ſeven days, called a *week*, was the firſt ſtep taken by mankind in dividing and meaſuring their time. We find, from time immemorial, the uſe of this period among all nations, without any variation in the form of it. The Iſraelites, Aſſyrians, Egyptians, Indians, Arabians, and, in a word, all the nations of the eaſt, have in all ages made uſe of a week, conſiſting of ſeven days [t]. We find the ſame cuſtom among the ancient Romans, Gauls, Britons, Germans, the nations of the north, and of America [u]. Many vain conjectures have been formed concerning the reaſons and motives which determined all mankind to agree in this primitive diviſion of their time. Nothing but tradition concerning the ſpace of time employed in the creation of the world, could give riſe to this univerſal immemorial practice.

But this meaſure of time was too ſhort, and of little uſe

[ſ] See below, p. 237.

[t] See Scaliger de emendat. temporum.; Selden de jure nat. & gent. l. 3. c. 17. &c.; Mem. de l'acad. des inſcript. t. 4. p. 65.

[u] See le ſpectacle de la nature, t. 8. p. 53.

for regulating the labours of the huſbandman. There was a neceſſity for finding out ſome other, more proportioned to the buſineſs and occaſions of ſociety. It could not be long before men obſerved, that the moon paſſed through all the various changes of her phaſes in about four weeks, and that, at the end of that time, ſhe began again to paſs through the ſame changes. It was eaſy then, by adding the number of days which the moon took up in each of her four changes, to find out the ſpace of her entire revolution from weſt to eaſt. Such was probably the origin of months.

We find, that, in the firſt ages, the year, in almoſt all nations, conſiſted only of one lunar month[x]. This is a demonſtration, that, in theſe ages, men knew nothing of the year properly ſo called, and that they had no longer meaſure of time than a lunar revolution[*]. It is even probable, that as the moon comes in conjunction with the ſun in ſomewhat more than twenty-nine days and an half, the firſt men, not very exact in obſerving ſmall differences, would fix the duration of their months at firſt at thirty days [y].

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[x] Diod. l. 1. p. 30.; Varro *apud* Lactant. inſt. l. 2. c. 13. p. 169.; Plin. l. 7. ſect. 49. p. 403.; Plut. in Numa, p. 72. B.; *Ex* Eudoxo, Proclus, in Tim. p. 31.; Stob. eclog. phyſ. p. 21; Gemin. p. 34.; Suid. in *voce* ῞Ηλιος, t. 2. p. 54.

Ouaiki, a Chineſe hiſtorian, ſays alſo, that Tiho-ang, ſecond Emperor of the firſt dynaſty, divided the day and night, and ordered that thirty days ſhould be one moon.

[*] I am not ignorant, that ſeveral critics will not admit of theſe years of one month. This, they ſay, is only an hypotheſis, contrived in later ages to account for the exceſſive length of the reigns of ſome ancient kings. The chief reaſon of theſe critics for rejecting years of one month, is, that, by admitting them, we fall into a contrary extreme. For, according to this calculation, even thoſe who are ſaid to have died in extreme old age, could not have been above 27 or 28 years old; from thence it would follow, that they had children at two or three years of age.

To this I anſwer, that we muſt not uſe this year of one month, to fix and determine the chronology of profane hiſtory in theſe firſt ages. I am fully convinced that theſe hiſtorians did not uſe it. The firſt ages knew not how to record events with exactneſs; their notions of chronology were quite confuſed, and they ſpoke on that ſubject in a manner at random. In later and more enlightened ages, when they began to write the hiſtory of the primitive times, and conſult the ancient traditions, theſe were ſo confuſed and changed, that they unavoidably betrayed theſe writers into many errors. This is the true ſource of all the difficulties we meet with in the chronology of ancient nations. They had originally no certain rules or meaſures to determine the duration of time. None but the Iſraelites can give us any light into this matter; this is an evident advantage in their hiſtory, above that of any other nation. The family of Shem preſerved this knowledge of chronology, to which all other nations were ſtrangers for many ages.

Such an incorrect method of meaſuring time could only ſubſiſt a little while in the infancy of the world. The various productions of the earth required the uſe of ſome longer period than a lunar revolution. The diſtinction of the ſeaſons, to which they alſo gave the name of years, came next into uſe. It is for this reaſon we find years of three, four, and ſix months, mentioned in ancient authors [z]. The negroes of Gambia, at this day, reckon their years by the periodical rains which fall in their country [a]. By degrees men found out a meaſure of time approaching nearer to our preſent year. They could not be very long in taking notice, that twelve revolutions of the moon viſibly brought about the ſame ſeaſons, and the ſame temperature of the air. After this diſcovery it was not difficult to divide the year into twelve parts, nearly equal. In tracing this genealogy of the meaſures of time, we clearly perceive the reaſon why the year was at firſt lunar, conſiſting of 354 days. This was the form of the year amongſt the moſt ancient nations *. They retained this form a longer or a ſhorter time, according to their ſlower or quicker improvements in ſcience, and their various ways of life. The Tartars, Arabians, and all other nations who derive their ſubſiſtence more from the fleſh and milk of animals, than from the fruits of the earth, make uſe of the lunar year to this day †.

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[y] See Diod. l. 1. p. 30.; Syncell. p. 38. What I have ſaid of the Chineſe a little above, p. 231. note [x].

[z] Diod. l. 1. p. 30.; Plin. l. 7. ſect. 49. p. 403.; Cenſor. de die nat. c. 19.; S. Aug. de civit. Dei, l. 12. c. 10.

[a] Hiſt. gen. des voyag. t. 3. p. 207.

* The feſtivals of the new-moons, though there were no hiſtorical monuments, would be ſufficient to eſtabliſh this fact. All ancient nations celebrated every new moon with feaſts. See Spencer de leg. Hebr. ritual. l. 3. c. 1. differt. 4.

The celebration of the new moon is found among the nations of America. Hiſt. des Incas, t. 2. p. 36. & 44.

† It is for this reaſon the ſavages have hardly any knowledge in aſtronomy. Their way of life does not require it. The greateſt part of theſe nations procure their ſubſiſtence by hunting and fiſhing, and not by agriculture. In conſequence of this way of life, they have no fixed abode, and do not need any meaſure of time to regulate their affairs.

The manner in which I have ſaid the months were originally regulated, might, it is true, give us room to think that the year, in theſe primitive times, muſt have been longer than I have ſuppoſed it. We have ſeen, that probably the firſt men reckoned a ſynodical revolution of the moon thirty days. It would be natural to conclude from thence, that their year of twelve months conſiſted of 360 days. Yet I do not imagine that this was really the caſe. There is reaſon to believe that this computation of thirty days to a month, was only, if we may ſo ſpeak, proviſional, and did not take place till they came to form their year into twelve lunations. They then rectified the former computation, by ſuppreſſing ſome days, according to the real time of the moon's revolutions. We know that this was practiſed by all the nations of antiquity. In the firſt ages, they reckoned the beginning of the month from the day of the moon's firſt appearance [b]. Accordingly we find that ſome months conſiſted then of thirty, and others only of twenty-eight days. This way of regulating the months of the lunar year, is ſtill practiſed in ſeveral countries [c].

Even this regulation of the year could not continue very long, where-ever agriculture was the principal occupation. The difference between the lunar and the real ſolar year is ſo conſiderable, that, in leſs than ſeventeen years, the ſeaſons would be quite inverted, ſummer taking the place of winter, and winter of ſummer. They would in a little time be conſtrained to make ſome reformations in their way of reckoning, which probably at firſt were but very imperfect.

Though the courſe of the moon was certainly the firſt rule which men followed in meaſuring their time, yet we cannot doubt, but that they very ſoon began to make obſervations on the motion of the ſun. The approach and departure of that luminary, the longer and ſhorter days, the viciſſitude of ſeaſons muſt have been the objects of human ſtudy and obſervation, in the very firſt ages of the world. They muſt ſoon have taken notice of the variations in the largeneſs of the meridian ſhadows: theſe are ſo ſtriking, that they could not long eſcape their obſervation. They muſt have perceived alſo, that, at the diſtance of ſome time, the ſun very viſibly changed the place of his riſing and ſetting in the horizon. From obſerving all theſe appearances, they would come to find out, that an annual revolution of the ſun conſiderably exceeded twelve lunar months. It is to be ſuppoſed, that they would then endeavour to find out ſome method to determine how much this exceſs was.

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[b] See Cicer. in Verr. act. 2. l. 2. n. 52. t. 4. p. 214.

[c] Voyage de Chardin, t. 5. p. 117. t. 7. p. 438.; Voyag. de Pyrard, p. 100. &c.; Rec. des voyag. au Nord, t. 10. p. 175.

Several means might have been employed in theſe primitive times, to find out the annual revolution of the ſun; ſuch as the return of that luminary to the ſame ſtars, which they formerly believed to be fixed; the inequality of ſhadows in each ſeaſon; the notice they took of the different points of the horizon where the ſun ſeemed to riſe and ſet. Let us be a little more particular.

That prodigious multitude of ſtars which appear during the night confuſedly ſcattered in the heavens, without any ſeeming order, were in the firſt ages only objects of idle curioſity. There is room to think it would be ſome time before men ſo much as ſuſpected, that theſe ſtars could afford them any direction or inſtruction. But probably this period was not very long. Agriculture and navigation, which have been the real ſources of aſtronomy, and the chief cauſes of its improvement, would ſoon lead men to ſtudy the order and poſition of the fixed ſtars. They could not be long in perceiving, that their appearance, a little before the riſing, or a little after the ſetting of the ſun, might furniſh them with ſome very eaſy and uſeful inſtructions *. The moon could not be of ſuch great utility. They would therefore have recourſe to the ſtars, whoſe heliacal riſing and ſetting is evidently uniform from year to year.

As ſoon as men began to obſerve the apparent courſe of the fixed ſtars, they would perceive, that the ſun had a peculiar movement of his own, and contrary to that which ſeemed every day to carry the whole firmament along with it. From thence they would begin to look for ſome fixed point in the

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* This is what is called the *heliacal* riſing or ſetting of the ſtars.

heavens to which they might refer, and with which they might compare the motion of that luminary, and by this means determine the courſe which he purſued. They would begin with taking notice of and naming thoſe ſtars which the ſun obſcured each month at his ſetting, and thoſe which ſucceſſively emerged from his rays, and ſhowed themſelves before his riſing. It was thus, by making themſelves acquainted with every ſtar under which the ſun paſſed, from his departure from any particular ſtar choſen at pleaſure, to his return to that ſame ſtar, that they might originally come to determine the bounds of the annual courſe of that luminary [d].

We may imagine too, that the obſervation of the meridian ſhadows might be of ſome ſervice in leading men to the knowledge of the duration of the ſolar year. This method ſeems to have been much uſed among the Egyptians [e], Peruvians [f], and Chineſe [g]. Gnomons were the firſt aſtronomical inſtruments invented by theſe nations [h]. Nature has pointed out theſe meaſures to men. Mountains, trees, buildings, are ſo many natural gnomons, and ſuggeſted the idea of artificial ones, which have been erected in almoſt every country.

It appears likewiſe probable, that the obſervation of the points in the viſible horizon where the ſun aroſe and ſet, might originally contribute to determine the length of the ſolar year. The firſt men paſſed a great part of their time in the open fields. About the time of the equinoxes, they might obſerve, that, on ſuch a day of ſuch a month, the ſun aroſe or ſet behind a certain tree, rock, or mountain. The next day they would take notice, that this luminary ſet or aroſe at ſome diſtance from that place, ſince, at the equinoxes, the ſun's declination changes ſenſibly every day. Six months after they would obſerve the ſun's return to the ſame point, and at the end of twelve months they would obſerve the ſame again. This method of determining the duration of the year is abundantly exact, and at the ſame time very ſimple. I am inclined to think that this method was uſed in the firſt ages. For, of all the terms to which they could refer the courſe of the ſun, the viſible horizon is the moſt obvious and ſtriking. This too is an obſervation, which it was in every one's power to make. I confeſs, however, that there are no traces of this to be found in hiſtory.

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[d] See Ptolem. Almageſt. l. 3. c. 2.

[e] See part 2. b. 2. ch. 2. art. 2.

[f] See l'hiſt. de l'aſtron. Chin. dans les obſervations mathem. publiées par le Pere Souciet, t. 1. p. 3. t. 2. p. 5. 8. & 21.

[g] See l'hiſt. des Incas, t. 2. p. 37. & 41.

[h] *Locis cit.*

Whatever were the methods which were originally employed for diſcovering the annual revolution of the ſun, theſe diſcoveries would for a long time be very imperfect, for want of aſtronomical inſtruments, and machines proper for meaſuring the different diviſions of time with preciſion. According to all appearances, all that they aimed at for a long time, was to make the ſolar and the lunar months agree, by adding ſix days to every twelve lunar months. In conſequence of this, they formed their civil year of 12 months, conſiſting of 30 days each, which make 360 days. By this means, that total inverſion of the ſeaſons, which was brought about in leſs than ſeventeen years, while the year conſiſted of 354 days, was not produced till after 34 years. As this reformation was ſtill imperfect, we have reaſon to ſuppoſe, that from time to time they added or ſuppreſſed a certain number of days or months, as they found occaſion, to reduce things into ſome tolerable order. We learn from hiſtory, that ſuch expedients have been often uſed *. It appears to me more natural to admit of this conjecture, than to imagine, contrary to the teſtimony of all antiquity, that the length of the ſolar year had been fixed in the very firſt ages after the flood at three hundred and ſixty-five days.

It is demonſtrable, that, in Moſes's time, the year conſiſted only of 360 days. We may ſoon convince ourſelves of this by examining his calculation of the duration of the deluge. We there ſee, that the year, which he makes uſe of, conſiſts of 12 months, of 30 days each, and he ſays nothing that can

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* When Julius Cæſar reformed the calendar, he was obliged to add two months, beſides the intercalary month, Mercedonius, invented by Numa. When Gregory XIII. undertook to reform the Julian calendar, he was obliged to ſuppreſs ten whole days.

give us any reaſon to think, that they then knew any thing of the neceſſity of adding any days to the 360, in order to make the civil year of the ſame duration with one annual revolution of the ſun [i].

The unanimous teſtimony of ancient authors aſſures us alſo, that the greateſt part of the nations of antiquity, even the moſt enlightened, for many ages, knew no other year but that of 360 days [k]. It is likewiſe certain, that the ſolar year of 365 days was no where introduced till long after the period we are now conſidering [l].

We ſhall now make a few obſervations on the methods uſed at firſt for meaſuring the leſſer diviſions of time. The art of meaſuring and numbering the moments which elapſe in the courſe of a day, is a diſcovery of ſuch importance, as very well deſerves an inquiry into its original. The moſt common and univerſally received diviſion of time is into days, months, and years. Theſe, ſays Plato [m], are the three parts of time. Homer [n] often mentions them. But mankind would very ſoon be deſirous of dividing their time into ſmaller portions. In order to this it was neceſſary to find out ſome method of dividing a day into ſo many equal parts.

Rude and ignorant nations who had no artificial methods of meaſuring time, made uſe of ſuch as nature preſented them with. The inhabitants of Iceland regulate their time by the tides [o]. The Chingulais, who have neither clocks, nor ſundials, meaſure their time by a certain flower which expands itſelf regularly every day, ſeven hours before night [p]. In

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[i] In reading the Moſaic account of the deluge, it ſeems clear to me that the year Moſes uſes conſiſted of 360 days. According to that account, Gen. c. 7. v. 11. & 24. c. 8. v. 3. & 4. the deluge began on the 17th day of the ſecond month, in the 600th year of Noah. The waters increaſed and continued to cover the earth for 150 days to the 17th of the 7th month, when the ark reſted on the mountains. Five months of the year then which was uſed in Moſes's time was equal to 150 days; conſequently, each of theſe months conſiſted of 30 days, and the whole year of 360.

[k] See la diſſert. de M. Allen, inſérée dans la théorie de la terre par Whiſton, l. 2. p. 144.

[l] See part 2. b. 3. chap. 2. art. 2.

[m] In Tim. p. 1004. [n] Odyſſ. l. 11. v. 293. l, 24. v; 141.

[o] Hiſt. nat. de l'Iſlande, t. 1. p. 260.

[p] Hiſt. gen. des voyages, t, 8. p. 533.

Madagaſcar, they judge of the hour by the length of the ſhadows of bodies placed in the ſunſhine [q]. It is obvious how imperfect all theſe methods are.

The civilized nations of antiquity made uſe of various means for dividing time into equal parts. Water-clocks and ſun-dials ſeem to have been the moſt ancient inſtruments, and moſt generally uſed for this purpoſe. We learn from ancient traditions, that water-clocks were the very firſt machines employed for the artificial meaſuring of time. The Egyptians place this invention in the moſt remote ages of antiquity. Mercury, ſay they, had obſerved, that the Baboon ſtaled twelve times a-day, at equal diſtances of time. He took the hint from this, and contrived a machine which produced the ſame effect [r]. From this narration, ſtript of that fiction in which the ancients involved the hiſtory of their firſt diſcoveries, we learn, that the Egyptians had found out the art of meaſuring time by the running of water. The uſe of this machine continued many ages among that people [ſ].

We know likewiſe, that it was by means of water-clocks, that the Chineſe aſtronomers computed the intervals of time which elapſed between the paſſage of a ſtar by the meridian, the riſing or ſetting of the ſun, the length of days, &c [t]. It was by the help of ſuch a machine too, as is imagined, that the firſt aſtronomers divided the zodiac into twelve equal parts [u].

It appears, therefore, that the invention of water-clocks was very ancient; though I will not take upon me to affirm that this machine was known in the ages we are now examining. I find ſtill fewer traces of the antiquity of ſun-dials.

In general, we have great room to doubt, whether the art of dividing the day into hours, or equal parts, was known in theſe firſt ages. The books of Moſes rather confirm than remove theſe doubts. The angels are ſaid to have appeared to Abraham in the heat of the day [x]. On all occaſions the different times of the day are deſcribed in a vague, uncertain manner, as, *When the ſun was going down*, *at even*, *at morning*, *at ſun-riſing*, &c [y]. From theſe expreſſions it ſeems probable, that they had not then invented any artificial method of ſubdividing the day into equal parts *.

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[q] Hiſt. gen. des voyages, t. 8. p. 624.

[r] Plinianæ exercitat. p. 643. 644.

[ſ] See Hor. Apollo, l. 1. c. 16.

[t] Hiſtoire de l'aſtronom. Chin. par le P. Gaubil, publiée par le P. Souciet, t. 2. p. 5.

[u] See below, p. 245.

It would very ſoon be found neceſſary to contrive ſome method of keeping an account of time. In the firſt ages men were ignorant of the art of writing; but they ſupplied this want by various methods, of which we find ſtill ſome traces left in hiſtory. Herodotus tells us, that when Darius prepared to march againſt the Scythians, he committed the guard of the bridge he had built over the Danube, to the Ionians. Before he ſet out, he made ſixty knots upon a cord, and having aſſembled the leaders of the Ionian troops, he harangued them thus, "Take this cord, and do as I am going to direct you. As ſoon as I am gone, untie each day one of theſe knots; if I am not come back when they are all untied, you may return into your own country [z]." We may, I think, conſider this cord as a kind of almanack; and from thence conclude, that, even in the days of Darius, they were ſtill very ignorant in the art of computing time.

We find examples of the like practices in ſeveral other countries. I have ſpoke in the preceding book of the quipos of the Peruvians [a]. Theſe kind of cords ſerved them for calendars and almanacks [b].

When the natives of Guyana prepare to take a journey, the chief of the nation, before their departure, takes a cord, on which he ties as many knots as they propoſe to ſpend days on their expedition. When they arrive at the place of their deſtination, they hang up this cord in the middle of the great

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[x] Gen. c. 18. v. 1. [y] Ibid. c. 15. v. 12. c. 19. v. 1. 15. 23.

* It may perhaps be anſwered, that it is not the cuſtom of hiſtorians, to name the preciſe hour when the events happened which they record. But it plainly appears to have been the intention of Moſes to point out the very hour when thoſe things which he mentions happened.

[z] L. 4. n. 98. [a] Chap. 6. p. 171.

[b] Hiſt. des Incas, t. 1. p. 128.

Karbet; and take care to untie one knot each day. By this kind of almanack, every one takes his meaſures to prepare for his return [c].

In the firſt years of the Roman republic, when the art of writing was ſcarcely known to that people, they drove a nail every year into the wall of the temple of Minerva [d]. By the number of theſe nails they computed the number of years [e]. This was practiſed by ſeveral other nations of Italy [f].

We may imagine, there were ſeveral other methods originally uſed for reckoning their days, months, and years.

Having given this general view of the ſtate and progreſs of aſtronomy in the ages which are the ſubject of this firſt part of our work, we ſhall now proceed to a more minute conſideration of ſome particular diſcoveries which we have but juſt named.

SECT. I.

Of the origin of the conſtellations and of the zodiac.

THE number of the fixed ſtars is ſo great, and their diſpoſition ſeems to be ſo confuſed, that in order to know and diſtinguiſh them from one another, it was neceſſary to divide the immenſe vault of heaven into different parts, and then to take notice of what was moſt remarkable in each of theſe diviſions. The azure ground on which the heavenly bodies ſeem to be ſcattered, being perfectly ſmooth and uniform, it was impoſſible to diſtinguiſh the parts of it, but by the difference of the ſtars which appeared in it. This difference conſiſts in the greater or ſmaller number of ſtars in each cluſtre, in their various degrees of brightneſs, but eſpecially in their poſition with reſpect to one another. It was neceſſary to affix particular denominations to each of theſe cluſters, and even to give names to ſome of theſe ſtars. This is what we call a *Conſtellation.*

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[c] N. relat. de la France Equinox, p. 183.

[d] T. Livius, l. 7. n. 3.; Feſtus, *voce Clavus*, p. 82.
It was believed by the ancients, that Minerva invented arithmetic. T. Livius, *loco cit.*

[e] Titus Livius, l. 7. n. 3. [f] Tit. Livius, *loco cit.*

After what I have ſaid of the great eaſe, utility, and extent of the inſtructions which the firſt men might receive from obſerving the fixed ſtars, we have reaſon to believe that the conſtellations had their origin in the ages we are now conſidering. The ſcriptures favour this opinion. Three conſtellations are mentioned in the book of Job [g]. There is mention alſo made in that work of the *Chambers of the South* [h], by which are commonly underſtood the conſtellations near the ſouth pole, which are inviſible to the inhabitants of the northern hemiſphere *. Some interpreters even imagine they have diſcovered the zodiac [i] in that book; an opinion not improbable, ſince, according to the beſt critics, the ſigns of the Scorpion and the Bull are therein deſcribed †. I have already obſerved that Job was cotemporary with Jacob [k]; from whence it follows, that, in his time, they had formed and given names to ſeveral conſtellations.

We are not to ſuppoſe that all the multitude of ſtars which every night preſent themſelves to our eyes, were reduced into conſtellations in the firſt ages, or as ſoon as men became ſenſible of the neceſſity of dividing the fixed ſtars into different cluſters. This invention, like all others, was brought to perfection by ſlow and inſenſible degrees.

There are ſome conſtellations which muſt have been ſooner obſerved and named than others. Every thing inclines us to think, that the conſtellations which are neareſt the pole, were the firſt which attracted the attention of the nations, whoſe hiſtory we are now examining. Theſe conſtellations never ſet to the inhabitants of theſe countries. They ſee them with the ſame facility, in all ſeaſons of the year, and at all hours of the night. By their conſtantly preſenting themſelves to our eyes, they ſeem to invite, and in ſome ſort to fix our attention. It is not the ſame with the conſtellations which compoſe the zodiac, or thoſe which are but at a little diſtance from it. When the ſun is near them, they diſappear for a conſiderable time, and they can only be perceived and diſtinguiſhed when they are at a certain diſtance from that luminary.

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[g] Chap. 9. v. 9. c. 38. v. 31. & 32.

[h] Chap. 9. v. 9.

* We may remark, from the manner in which Job ſpeaks of commerce, that he lived in a country frequented by merchants, who imported thither the rarities of the ſouthern regions. Newton very judiciouſly obſerves, that the converſations and connections Job might have with theſe merchants and navigators, might have given him his knowledge of the conſtellations. *Chronolog. des Egypt.* p. 229.

[i] Chap. 38. v. 32.

† See at the end of the laſt volume, our diſſertation on the conſtellations ſpoke of by Job.

[k] See at the end of this volume our diſſertation on Job.

Urſa Major would certainly be the firſt obſerved of all the conſtellations in the northern hemiſphere. There is ſomething very ſtriking and ſingular in the luſtre and arrangement of the ſeven ſtars, vulgarly called *Charles's-Wain*. The ſavages of North America knew and diſtinguiſhed the Great Bear before the arrival of the Europeans [l]. This conſtellation is known even to the people of Greenland [m].

Arcturus is commonly the firſt ſtar which appears after ſun-ſet, whoſe vivid ſcintillations diſtinguiſh it from the twilight while it is ſtill conſiderable. It is probable therefore, that Bootes, of which Arcturus is a part, was the next conſtellation after the Great Bear which received a particular denomination.

What we have ſaid of Arcturus and Urſa Major, may be perfectly well applied to Orion, and Sirius, or the mouth of the Great Dog. Among the meridional ſtars, therefore, thoſe which compoſe Orion and the great Dog, muſt have been the firſt formed into conſtellations. Every body knows, that Sirius, or the Dog's mouth, is the brighteſt of all the fixed ſtars; and Orion is ſo remarkable, that Aratus fears not to affirm, that whoever does not diſtinguiſh it at the firſt glance of the eye, will never diſtinguiſh any conſtellation [n].

The conſtellations of the zodiac are, in general, the leaſt remarkable, both in the number and luſtre of their ſtars, of any in this circle of the ſphere. The ſingular arrangement of ſome of them however would ſoon attract the attention of aſtronomers. The conſtellation of the Bull is in this reſpect the moſt remarkable of any of thoſe the ſun ſeems to paſs through. The Hyades, which form a kind of V conſonant on the Bull's head, and eſpecially the Pleiades, a cluſter of ſix ſtars upon his ſhoulder, are objects very ſtriking and diſtinguiſhable. The people of Greenland [o], and the ſavages of both Americas [p], had taken notice of the Pleiades; they had even engaged the attention of the Peruvians [q], who made no particular ſtudy of the fixed ſtars [r], though they were pretty well acquainted with the moſt eſſential parts of practical aſtronomy. The ſign of the Bull, therefore, was probably the firſt of the zodiac which was reduced into a conſtellation. It would be formed, in all appearance, of the two aſteriſms already mentioned, and ſome neighbouring ſtars.

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[l] Mœurs des ſauvag. t. 2. p. 235. & 236.

[m] Hiſt. nat. de l'Iſlande, t. 2. p. 222. & ſeq.

[n] Phænom. v. 225.

Scorpion too may be ranked among the firſt known ſigns. It includes one of the moſt remarkable ſtars of the zodiac. Theſe alſo which form his tail and his talons, have a good deal of luſtre, and are ranged in a ſingular manner around the principal ſtar. This part of the heavens is likewiſe very naked.

What we have now ſaid of the origin of the conſtellations, will amount, I imagine, to ſomething more than mere conjecture, when we conſider, that the Great Bear, Bootes, Orion, Canis Major, the Hyades, Pleiades, and Scorpion, are the only conſtellations mentioned either in the book of Job, or in Homer, or Heſiod.

There are no hiſtorical monuments to inform us, in what country this diſtribution of the fixed ſtars into conſtellations was invented. All the nations who applied early to the ſtudy of aſtronomy, as the Chaldeans, Egyptians, Chineſe, &c. ſeem to have equal pretenſions to the honour of this diſcovery. We may ſay of this diſcovery, as we have already ſaid of ſeveral others, that there is no one nation that can make good its claim to it. Let us proceed to the diſcovery of the zodiac.

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[o] Hiſt. nat. de l'Iſlande, t. 2. p. 222. & ſeq.

[p] Mœurs des ſauvag. t. 2. p. 235. & 236.; N. relat. de la France equinox, p. 139.; Mem. de l'acad. des ſcienc. ann. 1745. m. p. 447.

[q] Hiſt. des Incas, t. 2. p 36.

[r] Ibid.

I have juſt now ſaid, that, in all probability, theſe cluſters of ſtars under which the ſun ſeems to direct his courſe, were not the firſt which were reduced into conſtellations. We muſt not, however, imagine that the diſcovery of theſe aſteriſms which compoſe the zodiac, was much later than that of the other conſtellations. On the contrary, we have reaſon to think, that this diſcovery preceded the death of Jacob, and falls within thoſe ages which are the ſubject of this firſt part of our work.

I have already explained the motives which might have induced mankind, in the firſt ages, to diſtinguiſh and give names to theſe aſteriſms, under which the ſun ſeemed ſucceſſively to direct his courſe, in the ſpace of one year [f]. I may add, that this would have been extremely difficult, if the ſun had been the only one of the celeſtial bodies which purſued that courſe. But the planets which attend that luminary, and tread the ſame path, muſt have contributed greatly to diſcover his proper direction from weſt to eaſt. We ſhall ſee by and by, that the diſcovery of the planets belongs to the ages we are now conſidering; our buſineſs at preſent is to eſtabliſh that of the zodiac. Inſtead of direct authorities, which are wanting, I ſhall propoſe ſome conjectures.

Every thing proves, that the diſcovery of the zodiac was very ancient in Egypt [t]; probably within the ages we are now examining. The ſpace of more than 700 years, from the deluge to the death of Jacob, ſeems to me a ſufficient time, for the Egyptians to have made this diſcovery; for which reaſon I ſhall place it about the year 1690 before J. C. We have already ſeen that the Egyptians had then a year, conſiſting of 360 days, and that this year was divided into 12 months, of 30 days each [u]. Beſides, we know that their aſtronomers, in the remoteſt ages, had divided the zodiac into twelve equal parts of thirty degrees each, diſtributed into twelve ſigns [x].

[f] *Supra*, p. 234.

[t] See Diod. l. 1. p. 110.; Lucian. de aſtrolog. p. 363.; Macrob. in ſomn. Scipion. l. 1. c. 21. p. 107. &c.

[u] *Supra*, p. 236.

[x] Servius ad georg. l. 1. v. 33.

Now, the relation between the diviſion of the zodiac into twelve ſigns, each of thirty degrees, and the diviſion of the year into twelve months, of thirty days each, is ſo ſtrong, as to render it probable, that they were both eſtabliſhed at the ſame time, or at no great interval. Beſides, the Egyptians muſt have made many obſervations on this ſubject, before they arrived at this point, of fixing the extent of each conſtellation which compoſed each ſign of the zodiac preciſely to 30 degrees. This muſt have been the reſult of a long chain of reaſoning and conſtant application, to refer the courſe of the ſun to the fixed ſtars. If we have reaſon to think that the zodiac was diſcovered by the Egyptians in the ages we are now upon, we have ſtill ſtronger reaſons to believe that it had then been diſcovered by the Chaldeans, who certainly had the ſtart of the Egyptians in aſtronomy.

It is greatly to be wiſhed, that the ancients had tranſmitted to us ſome clear and faithful accounts of the methods uſed by the firſt aſtronomers in dividing the zodiac. We find indeed, in two authors, a very ſingular method, which, they pretend, was originally uſed in making this diviſion. The one gives the honour of the invention of this method to the Chaldeans, the other to the Egyptians [y].

They ſay, that the firſt aſtronomers having made choice of ſome ſtar, remarkable for its bigneſs and brightneſs, endeavoured to meaſure its diurnal revolution in this manner. They took two veſſels of copper, the one of which had a hole in its bottom, which they could open and ſtop at pleaſure, the other had none. They filled the firſt with water, and left the other empty. They placed theſe veſſels in ſuch a manner, that they could let the water in the one run into the other whenever they thought proper. The moment they perceived the ſtar they had fixed upon appear above the horizon, they let the water in the upper veſſel begin to run into the lower, and it continued running all that night, and all the day following, till they ſaw the ſame ſtar appear above the horizon in the beginning of the ſecond night. By this means they were ſure of having one entire revolution of the heavens, between the firſt riſing of the ſtar and its return to the horizon. The quantity of water which had run out of the one veſſel into the other, would enable them, as they imagined, to meaſure the time of that revolution, and to divide it into twelve equal parts *.

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[y] Sext. Empiric. adv. mathemat. l. 5. p. 342.; Macrob. in ſomn. Scipion. l. 1. c. 21. p. 107. & ſeq.

In order to this, they divided this quantity of water into twelve equal parts. They fancied they could meaſure a twelfth part of a revolution of the heavens, by the time the twelfth part of the water would take in running. For this new obſervation, they prepared other two ſmall veſſels, each of which could contain exactly a twelfth part of the water. They began by putting the whole quantity of water which had run during the firſt operation, into the large veſſel. They then placed one of the little veſſels directly under the hole in the bottom of the larger, and the other by its ſide, to ſubſtitute in the place of the other ſmall one when it was full.

Then our obſervators once more fixed their attention on that part of heaven where they knew the ſun, moon, and planets ſhaped their courſe. They remarked the ſtars which aroſe within that ſpace, during the time when each of the twelve parts of the water was running. They determined the extent of the ſigns or conſtellations in the path of the ſun, by that ſtar which appeared above the horizon at the moment when one of the ſmall veſſels was filled. This obſervation could not be made, according to Macrobius, but in two nights in different ſeaſons †.

Such, as theſe authors tell us, was the method uſed by the firſt aſtronomers for dividing the zodiac into twelve equal parts. It is eaſy to ſee how defective and imperfect this method was. If it was ever uſed, it could not determine any thing with exactneſs, but, on the contrary, occaſion the moſt monſtrous errors.

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* The number twelve was at firſt much uſed in diviſions, becauſe there is hardly any number in common uſe which can be divided ſo many ways without any remainder. For this reaſon, at firſt, they ſought as much as poſſible equal numbers for diviſion. Hence comes too the diviſion of the ecliptic into 360 degrees.

† The reaſon of this is very plain. Without the frozen zones, there is no place where one night is 24 hours long, and conſequently there is no place where they could obſerve an entire revolution of the firmament in one night.

Let us imagine a veſſel in the form of a cylinder or priſm, with ſuch a hole in the bottom of it, that the water in it ſhould run out preciſely in twenty-four hours. Let us imagine, further, this water divided into twelve equal parts. That twelfth part which run out firſt, would take up only one hour and about two minutes in running; whereas that twelfth part which run out laſt, would take up no leſs than ſix hours fifty-five minutes and forty ſeconds; and not ſo much as any one of the intermediate parts would take exactly two hours, or the twelfth part of twenty-four hours *. Beſides, though we ſhould ſuppoſe the running of the water perfectly uniform, this method would not ſucceed, even in the moſt advantageous ſituation, that is, under the equinoctial line; and the error would be much greater in any other poſition, on account of the obliquity of the ecliptic, whoſe horary circles divide the equator into unequal parts, though they cut it equally at the diſtance of fifteen degrees from each other †.

After theſe reflections, it would be needleſs to add, that an operation of this kind ſuppoſes an exact knowledge of the an-

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* Sextus Empiricus, in relating this hiſtory, or rather fable, ſeems to be ſenſible that the water would run faſter at the beginning, and ſlower towards the end of this operation. He even uſes this as an argument againſt the juſtneſs of the concluſion from it. But he was far from imagining the error ſo great as it really is. For the firſt of theſe diviſions would not exceed $15^\circ\ 30'$; whereas the laſt would exceed $103^\circ\ 59'$, according to our calculation. It is only ſince Guglielmini, Mariotte, and Newton, laid down the true principles of hydraulics, that we have been able to calculate the ſwiftneſs with which water runs out of veſſels which empty themſelves entirely. How abſurd is it then in a modern author to pretend, that theſe men who endeavoured in good earneſt to divide the zodiac by ſuch an operation as this, were capable of correcting and ſetting right the error ariſing from the running of the water with more or leſs rapidity?

† Under the line, 15° of the equator which riſe in one hour above the horizon, counting from the firſt point of the Ram or the Balance, give $16^\circ\ 23'\ 23''\frac{4}{7}$ of the ecliptic, the angle of inclination $23^\circ\ 28'\frac{1}{2}$; and in two hours 30° of the equator give $33^\circ\ 1'\ 57''\frac{2}{3}$ of the elevation of the ſame point in reference to the ecliptic.

But if we ſuppoſe the obſervator placed at 45° north latitude, and that he views a ſtar at the firſt point of the ſign of the Balance, at the interſection of the ecliptic, the equator, and the horizon, then 15° of elevation with reſpect to the equator, would only give $23'\frac{2}{3}$ of the ecliptic. Whereas, if the obſervator viewed a ſtar placed in the horizon at the firſt point of the Ram, 15° elevation of the equator would give him $27^\circ\ 57'\frac{1}{2}$ of the ecliptic.

nual motion of the ſun, of the poſition and obliquity of the ecliptic. This knowledge could only be attained by a very long courſe of obſervations and difficult operations. No author has recorded the time when this diſcovery was made; but we cannot reaſonably refer it to the firſt ages, it being impoſſible to arrive at it without the knowledge of ſome theorems in geometry, much too ſublime for theſe ages. I have related this whole hiſtory of the invention of the zodiac, only becauſe I would omit nothing that is to be found in ancient authors, on the origin of aſtronomy. Sextus Empiricus himſelf does not ſeem to give much credit to his own ſtory; and except in him, and Macrobius, who ſpeaks of it indeed more poſitively, we find no traces of it in ancient writers. Ptolemy does not ſeem to have had any knowledge of it. Hipparchus ſpeaks of it indeed, but only to refute it. It is better to confeſs our ignorance of the methods originally uſed in dividing the zodiac. The diviſion of it is exceeding ancient, and this, no doubt, is one of the reaſons that the traditions about it are ſo obſcure. If this diſcovery had been more modern, its hiſtory would have been better known.

This would be the proper place to ſpeak of the names originally given to the different conſtellations. But my inquiries into that matter have engaged me in ſuch long diſquiſitions, that I think it better to throw together all I have to ſay on that ſubject, in a diſſertation at the end of the ſecond volume, than to interrupt the hiſtory of the aſtronomical diſcoveries of this period[z]. I ſhall do the ſame with regard to the names of the planets[a]. Theſe queſtions many be conſidered as a kind of digreſſions, which would only divert our atttention from the principal object.

SECT. II.

Of Planets.

THE diſcovery of the planets muſt ſoon have followed, if it did not precede that of the conſtellations; and it has alſo a great connection with the invention of the zodiac.

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[z] See the diſſertation on the names and figures of the conſtellations, vol. 2.

[a] See the diſſertation on the names of the planets, ibid.

As ſoon as men began to ſtudy the diſpoſition and motion of the ſtars, they would perceive that ſome of them had a kind of motion peculiar to themſelves, while the reſt of the firmament preſented always the ſame aſpect. They would diſcover, that thoſe ſtars which are called *planets*, anſwered alternately to different points of the heavens, and ſucceſſively paſſed through different conſtellations. After ſome years obſervation, they would be fully convinced, that whereas the fixed ſtars appeared always at the ſame diſtance from each other, the poſition of the planets varied both among themſelves, and in relation to the fixed ſtars. This diſcovery would neceſſarily bring them to eſtabliſh a diſtinction between the planets and the fixed ſtars. They would probably not be long in giving the former a name expreſſive of the inequality of their motion, as they called the latter fixed *.

Some nations ſeem to have diſcovered the planets very early. The Babylonians and Egyptians, it is ſaid, perceived the difference between their motion and that of the fixed ſtars in the remoteſt ages [b]. This, I think, is a ſufficient authority for placing the diſcovery of the planets in that period which is the ſubject of the firſt part of our work.

The diſcovery of all the planets was not made at once. Such as are moſt remarkable for their luſtre, and the inequality of their motions, would be firſt taken notice of, and this would lead to the diſcovery of others. For this reaſon, I am perſuaded, that Venus was the firſt ſtar found to be a planet, as it has both theſe qualities in the higheſt degree. Accordingly, Venus attracted the notice of the rudeſt nations, as we ſhall ſee by and by.

Mars was probably the ſecond ſtar ranked among the planets. Its luſtre is commonly leſs ſtriking than that of Venus, but in its perigæum it may diſpute with that planet in brightneſs †. Beſides, the inequality of its motions, ſometimes direct and ſometimes retrograde, is very remarkable. Mars, then, it is likely, was very ſoon put in the number of the planets.

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* Planet comes from a Greek word which ſignifys to *wander*.

[b] Diod. l. 1. p. 91. 92.; Lucian. de aſtrolog. p. 362.; Simplicius in libr. 2. Ariſt. *de cœlo*, folio 117. *verſo*.

† We might have ſeen this in September 1751.

It would not be long before Mercury was placed in this claſs, on account of his brightneſs and the celerity of his motion. Though it is not probable that Mercury was ſo ſoon diſtinguiſhed from the fixed ſtars, as either Mars or Venus, as he is the ſmalleſt of all the planets, and almoſt conſtantly plunged in the rays of the ſun, never departing from that luminary above 28 degrees. It was only for a little while, in his greateſt elongation, that they could perceive and examine his motions. We find however, that Mercury was anciently known to the Babylonian and Egyptian aſtronomers. It is true, theſe nations were very happily ſituated for viewing that planet, both on account of the ſerenity of the climate, and the poſition of their countries, which is favourable for making obſervations on Mercury. For the leſs oblique the ſphere is, it is the eaſier to diſcern that planet, diſengaged from the rays of the ſun.

Though Jupiter is remarkable for his bulk and brightneſs, yet the firſt aſtronomers would be deceived by the great length of his revolutions. As he deſcribes a very large circle in the zodiac, and takes near twelve years to accompliſh his revolution *, the great ſpace of time which he took to paſs through one ſign, would make him be long confounded with the fixed ſtars. It required a great many obſervations to diſcover his change of place, and it would be long before he was ranked among the planets †.

Theſe reaſons which have made us imagine it would be long before Jupiter was ranked among the planets, will hold ſtill ſtronger with reſpect to Saturn. Of all the planets, he is at the greateſt diſtance from the ſun, deſcribes the largeſt circle, and takes the longeſt time in performing a revolution. He is near thirty years in accompliſhing one revolution ‡, two years and ſix months in paſſing through one ſign. The aſtronomers obſerving this ſtar, for ſeveral years together, nearly in the ſame place, would long believe it to be fixed. They would be deceived by the ſmallneſs of the change in his poſition in

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* Eleven years and 330 days.

† It may perhaps be ſaid, that the retrogradations of Jupiter would diſcover him to be a planet ſooner than we have ſuppoſed. They are indeed very remarkable. But I doubt whether the firſt aſtronomers obſerved them. They had not a ſufficient degree of knowledge to take notice of theſe phænomena.

‡ Twenty-nine years and 150 days.

the courſe of one year. Beſides, Saturn is a very ſmall planet in appearance, and has very little luſtre. For theſe reaſons, I am perſuaded that Saturn was the laſt, Mercury perhaps excepted, of the planets whoſe motion was diſcovered.

After they had made ſome obſervations on the planets, they would come to remark, that though they were continually changing their place, yet their motions were regular and periodical, and that they never ſtrayed beyond a certain point from the equator, either to the north or ſouth. This diſcovery would cauſe them to fix their attention particularly on that part of the heavens where theſe planets conſtantly move; and as this too is the region in which the ſun performs his annual revolutions, their obſervations on the motion of the planets would make them alſo better acquainted with the courſe of the ſun. I have made this obſervation before, in ſpeaking of the origin of the zodiac [c]. We may conſider the diſcovery of the planets and their peculiar motions, as a new proof of the early arrangement of the ſtars into conſtellations. For it was only by means of the conſtellations, that is, by comparing the planets with the fixed ſtars, that they could diſcover the motion and courſe of the planets; and this we have ſeen was diſcovered by ſeveral nations in very ancient times [d].

ARTICLE III.

Geometry.

I Have already ſaid, that the origin of arithmetic, geometry, and mechanics, was as ancient as the diviſion of lands, which is a ſufficient evidence of their great antiquity [e]. I obſerved alſo, how very rude and imperfect the arithmetic of the firſt ages was. This obſervation is equally applicable to geometry. This had its ſtate of infancy as well as other ſciences. It required a long time to bring it from its firſt rude beginnings into any regular ſyſtem.

In the ages we are now examining, mankind was ſo much engaged in providing againſt their various and preſſing wants, that they could not give their minds to ſuch ſublime and abſtracted ſpeculations as were neceſſary to bring geometry to that high degree of perfection to which it has now arrived. Such ſpeculations require great leiſure, and leiſure is the fruit of plenty. Thoſe who formed the firſt ſocieties, would ſtudy geometry no further than was indiſpenſably neceſſary. Let us then examine what parts of geometry were ſuited to their moſt urgent occaſions, and we ſhall diſcover the true origin of this ſcience.

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[c] Supra, p. 244.

[d] Supra, p. 249.

[e] Supra, c. 2. p. 210.

Geometry is commonly divided into three parts, viz. longimetry, planimetry, and ſtereometry, anſwering to the three dimenſions of extenſion, the meaſuring of which is the object of this ſcience.

Longimetry, the firſt and moſt ſimple of theſe parts, conſiders only length, and conſiſts in meaſuring ſtraight lines. This branch of geometry is almoſt as ancient as the world itſelf. I might bring many proofs of this, but I ſhall content myſelf with one which appears unanſwerable. The ſcriptures tell us, that Nimrod built ſeveral cities. I ſhall admit, that the buildings in theſe cities were very defective, both in ſymmetry and ſolidity. Let them, if you will, be deemed rather mere huts than houſes: yet ſtill it cannot be denied, that theſe edifices muſt have been large enough to lodge each one family, and high enough to admit their inhabitants without difficulty. It was neceſſary, therefore, to cut the pieces of wood which compoſed them, into ſuch lengths as were ſuited to the ſeveral uſes for which they were deſigned. It is undoubtedly for this reaſon, that the greateſt part of long meaſures, as the fathom, the foot, the inch, and the cubit, which is perhaps the moſt ancient of all meaſures, have a plain reference to the ordinary length of the human body, or ſome of its parts.

Planimetry, or the meaſuring ſurfaces, is not by much ſo ſimple as longimetry. For though ſtraight lines may be infinitely various as to their length, yet their nature is conſtantly the ſame, and they may be always compared with each other by ſuperpoſition, in which the whole practice of longimetry conſiſts. We may ſtill apply a length already known and determined, to that which we have to meaſure. But this cannot be done with ſurfaces, the meaſuring of which is the object of planimetry.

The triangle and parallelogram are the ſimpleſt of ſuperficial figures; yet we can eaſily imagine an infinite number of triangles and parallelograms equal to each other, which cannot be applied to, or placed upon each other; which is the natural way of determining their equality or inequality. Their relation, therefore, can only be diſcovered by a kind of mental ſuperpoſition, and a chain of conſequences, whoſe connection with their firſt principles is not ſeen at one view. Planimetry therefore, which comprehends ſurveying and levelling, was probably not invented till ſocieties had attained a certain degree of ſtability and improvement. They muſt have had ſome knowledge of this before the deluge; but it is very likely that the antediluvian diſcoveries in geometry periſhed in that terrible cataſtrophe. All that mankind knew of this matter, in the period we are now upon, ſcarce deſerved the name of an art. This is evident by a fact acknowledged by all antiquity. More than 1500 years after this period, very plain theorems, without which the meaſuring of ſurfaces muſt have been defective, were conſidered as the greateſt efforts of the human mind *.

Planimetry owes its origin chiefly to the diviſion of lands. As ſoon as political ſocieties were formed, it was neceſſary to fix the extent of inheritances. This gave riſe to the cuſtom of pointing out the quantity of territory which belonged to each inhabitant of a country, by land-marks, and ſuch ſigns; a cuſtom which prevailed in the moſt remote antiquity [f]. But theſe ſigns and marks were liable to be removed or diſplaced by various accidents. It was neceſſary to contrive ſome method to replace them in their former poſition. This probably introduced ſome rude inaccurate practice of planimetry. Theſe practices would be gradually improved, by the neceſſity there would be of dividing inheritances among a number of heirs, at the death of the poſſeſſors. The neceſſity of meaſuring of

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* See Diog. Laert. in Pythag. ſegm. 11.

Pythagoras ſacrificed an ox, when he invented the 32d prop. of book 1. of Euclid. See hiſt. narrat. de ortu & progreſſu matheſ. apud Tacquet elamenta geomet. Amſtelod, *in* 12° 1683.

[f] See ſupra, p. 31.

land was ſo great, and the practice of it ſo frequent, that it would ſoon be much improved, and deſerve the name of an art. Geometry, according to its etymology, properly ſignifies *the art of meaſuring land.* This ſcience probably obtained this name, becauſe land-ſurveying, or practical planimetry, was the firſt branch of that ſcience which was reduced into an art. Longimetry is too ſimple to deſerve the name of an art; and ſtereometry too complex to be cultivated and brought to perfection before planimetry.

We find nothing in ancient authors to direct us to the exact order in which the fundamental principles of meaſuring ſurfaces were diſcovered. We muſt ſay the ſame of the other branches of elementary geometry. So that on this ſubject we can only form ſome conjectures. They probably began with thoſe ſurfaces which are terminated by right lines, and amongſt theſe with the moſt ſimple. It is hard indeed to determine, which of thoſe ſurfaces which are terminated by a ſmall number of right lines, are the moſt ſimple. If we were to judge by the number of ſides, the triangle has indiſputably the advantage. Yet I am inclined to think, that the ſquare was the figure which firſt engaged the attention of geometricians. It was not till ſome time after this, that they began to examine even equilateral triangles, which are the moſt regular of all triangular figures. It is to be preſumed, that they underſtood that rectilinear figure firſt, to which they afterwards compared the areas of other polygons as they diſcovered them. It was by this means the ſquare became the common meaſure of all ſurfaces. For in all ages, and amongſt all nations, of which we have any knowledge, the ſquare has always been that in planimetry which the unit is in arithmetic. For though in meaſuring irregular rectilinear figures, we are obliged to reſolve them into triangles, yet the areas of theſe figures are ſtill given in ſquare perches, fathoms, feet, and inches.

There is reaſon then to think, that the art of meaſuring ſquares was firſt diſcovered. This would naturally lead to the knowledge of meaſuring right angles, and that to the art of meaſuring rhombs and rhomboides. At laſt the method of meaſuring the areas of triangles would be found out. This would facilitate the art of meaſuring trapeziums, and in general all polygons, whether regular or irregular. Many of theſe diſcoveries were probably the effects of ſome lucky accident, rather than the reſult of a methodical inquiry.

Of all the theories on which the art of meaſuring ſurfaces is founded, that of angles was the lateſt in attaining to perfection. It is ſufficient to convince us of this, to conſider, that the definition which Euclid gives of an angle, at a time when elementary geometry had reached the higheſt point of perfection, has been found defective by very good judges in ſuch matters[g]. But though we had not this proof, which appears to me concluſive, we have ſtill another which would be almoſt irreſiſtible. It is certain, that of all the quantities which are the object of geometry, the idea of none of them is ſo abſtract and difficult to form as that of an angle. It is not a figure; it is the relation of the poſition of two lines, a relation which affects the ſenſes but very faintly. In a word, it is much eaſier to ſay what an angle is not, than to determine preciſely what it is.

I have now ſhewn, that the firſt generations of men could not be long unacquainted with longimetry. I have alſo pointed out in what manner, as I imagine, they arrived at ſome imperfect notions of planimetry; but theſe notions were by no means ſufficient to the practice of ſtereometry. This branch of geometry, the menſuration of ſolids, was undoubtedly the laſt diſcovered. The geometricians of the firſt ages, however, had probably ſome little knowledge of this matter, and that much ſooner than we might at firſt imagine.

I have proved in the preceding article, that the invention of the balance was exceeding ancient. The uſe of this machine neceſſarily ſuppoſes ſome knowledge of the menſuration of ſolids. For which reaſon we may, I think, conſider the art of uſing weights and balances as the occaſion of the diſcovery of ſtereometry, or the menſuration of ſolids.

The weights of bodies are according to their ſolid contents; and when two bodies are compoſed of the ſame materials, the proportion between their weights and their magnitudes is the ſame. They muſt therefore have been able to determine the magnitudes of bodies, and their proportions, before they could make weights which were double, triple, one half, one third, &c. of that which had been taken for a common meaſure.

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[g] See la recherche de la vérité, l. 2. p. 2. c. 6. & la logiq. de Port Royal, part 1. c. 12.

The ſame reaſons which inclined me to think, that of all ſurfaces, the ſquare was the firſt object of mens ſtudy, incline me to believe alſo, that of all ſolids, the cube firſt engaged their attention. They probably took for the common meaſure of weights, a cube of a certain metal, copper for example, whoſe ſide was of a known and determined length. When they weighed a quantity of any commodity, ſuppoſe double, triple, &c. of the common meaſure, at firſt they put into one of the ſcales, two, three, &c. cubes at once. But they would ſoon perceive that it would be more commodious to have weights of one piece, twice, thrice, &c. the weight of the common meaſure. It would not be long before they found out, that, in order to procure ſuch, they needed only to double, triple, &c. the height of the ſolids which they uſed as weights, leaving their baſe the ſame. Chance would probably lead them to this diſcovery, by one or more cubes falling above another in the ſcale, and thereby forming a parallelopipedon double or triple the firſt cube. Thus the knowledge of the cube would lead to that of the parallelopipedon, as the knowledge of the ſquare had led to that of the rectangle.

This genealogy of the firſt principles of the menſuration of ſolids might be carried further, but we have dwelt long enough in the region of probabilities. We cannot be too ſparing of conjectures. Let us proceed to ſomething more certain, and repreſent the few faint lights which are to be found in hiſtory on the origin and progreſs of geometry. Let us collect and examine the few facts which have eſcaped the injuries of time. This diſquiſition will give us an opportunity of ſhewing, that beſides all we have already ſaid, the practice of navigation, and the ſtudy of aſtronomy, contributed much to the improvement of geometry. According as the ſeveral nations were more or leſs addicted to navigation and aſtronomy, they applied themſelves more or leſs to the cultivation of geometry.

It is unqueſtionable, that, in the ages we are now upon, ſeveral nations had ſome tincture of geometry. The Babylonians, Egyptians, Phœnicians, &c. had undoubtedly ſome knowledge of the fundamental principles of this ſcience in very early times. A few ſummary reflections will convince us of this. Let us begin with the Egyptians.

I have already ſaid, that planimetry, in which levelling and land-meaſuring, the moſt neceſſary and uſeful parts of geometry, are included, owed its origin to the diviſion of lands[*]. I have alſo ſhewn the neceſſity the firſt political ſocieties were under of ſettling the boundaries of inheritances[h]. The Egyptians were certainly one of the nations which were firſt formed into a regular ſtate. From theſe facts we cannot but be convinced, that they had ſome knowledge of the fundamental parts of geometry in the moſt ancient times.

I ſhall not indeed take upon me to fix the preciſe period when the Egyptians reduced land-ſurveying into an art. Jamblicus places this event under the reign of the gods, that is, in the moſt remote ages[i]. One thing is very certain, that land-ſurveying muſt have been ſoon known and practiſed in Egypt. We have ſomething more than mere conjecture for this. We find the menſuration and diviſion of lands eſtabliſhed in Egypt before Joſeph's arrival in that country. At that time every one had his own particular domain[k]. We ſee too from the ſacred books, that, before this period, the lands belonging to the prieſts, had been divided from thoſe of the other inhabitants[l]. Theſe facts neceſſarily ſuppoſe the practice of land-meaſuring.

One diſcovery almoſt always leads to ſome other. The Egyptians did not confine their inquiries to theſe firſt principles of this ſcience which neceſſity required, but carried their views and reſearches much further. The ſimple menſuration of lands was improved by them into the ſcience of all kinds of proportions repreſented by lines. This people inceſſantly employed in the improvement of their country, ſoon obſerved, that the overflowings of the Nile did not of themſelves extend far enough, which occaſioned many lands to be uncultivated. The neceſſity they were under of cultivating great quantities of land, put them upon contriving methods of conducting the waters of the Nile into diſtant fields, which without them muſt have remained barren. What we ſaid, in the article of the arts, concerning the lake Mœris, and the great number of canals made in Egypt ſoon after the deluge, cannot be yet forgotten [m]. Works of this kind require ſome knowledge of the art of levelling, and even ſome notions of the ſimpleſt parts of ſtereometry.

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[*] This is confeſſed by the hiſtorians of all civilized nations. See Martini, hiſt. de la Chin. l. 1. p. 18. 19.

[h] Supra, b. 1. art. 2. p. 31.

[i] In vita Pythag. c. 29. p. 134. edit. in 4°. 1707. See alſo Plato in Phæd. p. 1240.; Diod. l. 1. p. 80. & 105.; Clem. Alex. ſtrom. l. 1. p. 361.; Diog. Laert. in Pythag. ſegm. 11. p. 497.

[k] Gen. c. 47. v. 20.

[l] Ibid. v. 22.

We know further, that arithmetic and geometry were the favourite ſtudies of the Egyptians [n]. Theſe two ſciences were no leſs uſeful and neceſſary in the affairs of life, than they were agreeable to the ſpeculative philoſophical genius of the Egyptians. Naturally quick and inventive, that people could not fail to make very rapid progreſs in theſe two branches of the mathematics.

I ſhall not examine at preſent, how far the Egyptians carried their diſcoveries in geometry. That diſquiſition will fall in more regularly in the third part of our work. It will be more proper to repreſent the ſentiments of the ancients, concerning the manner in which geometry took its riſe in Egypt. There never was, ſay they, any country where the art of land-ſurveying was ſo neceſſary as in Egypt. The yearly overflowings of the Nile muſt have occaſioned great confuſion in the boundaries of eſtates, taking from ſome, and adding to others, removing ſome land-marks, and covering up others. Theſe continual changes, therefore, obliged the Egyptians to contrive ſome method to diſcover and aſcertain the quantity of land belonging to each proprietor, after the retreat of the waters. They could not do this without the art of land-meaſuring, which, ſay they, gave birth to geometry in Egypt [o].

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[m] Supra, b. 2. p. 93. & 138.

[n] Diod. l. 1. p. 91.

[o] Id. ibid.; Strabo, l. 17. p. 1136.; Proclus in Tim.; Caſſiodor. var. l. 3. epiſt. 52. &c.

This is the opinion of the greateſt part of ancient authors, adopted by all the moderns. But this opinion, though very plauſible, is without any ſolid foundation. It is even inconſiſtent with that ſpirit of induſtry which the Egyptians diſplayed, in every thing relating to the internal order and improvement of their country.

It is not to be imagined, that the Egyptians were obliged to meaſure regularly every year all the lands overflowed by the Nile. A people ſo wiſe and ſo inventive, would certainly diſcover ſome method to fix their land-marks, ſo as to reſiſt the inundations of that river. This diſcovery would be much eaſier than the moſt common methods of land-ſurveying. For which reaſon I have not the ſmalleſt doubt, but that the account given us of this matter by the ancients, is entirely without foundation. At preſent, the inhabitants of Egypt find no neceſſity of meaſuring their lands after the overflowings of the Nile; the land-marks are not diſturbed, and every proprietor knows what belongs to him, as well after the inundation, as he did before [p]. In this reſpect Egypt was the ſame in ancient times, as it is at preſent.

If the ancients had but attended to the manner of the Nile's overflowing, they never could have fallen into the miſtake I am now combating. They have not conſidered that that river does not riſe ſuddenly, but ſwells by ſlow degrees, ſoftly glides over its banks, and lays Egypt under water. This can occaſion no diſorder in their boundaries, it being eaſy to ſink their land-marks ſo deep in the earth, as not to be diſcompoſed by a ſtream which does not flow with any great rapidity.

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[p] Voyage de l'Egypte par Granger, *init.* It is true, this traveller adds, that the land-owners let their grounds every year to different farmers, and as theſe new farmers take ſometimes more and ſometimes leſs than their predeceſſors, it becomes neceſſary to meaſure to each of them the quantity he farms. But this admeaſurement is not occaſioned by the overflowings of the Nile, but by the yearly change of farmers.

They have the ſame cuſtom in Japan. The whole lands are meaſured immediately before ſeed-time, and again a little before harveſt, from which they make a computation of the product of each field, to prevent the farmers impoſing upon their landlords. Theſe computations, it is ſaid, are ſurpriſingly juſt. Hiſt. du Japon par Kæmpfer, t. 1. p. 191.

But the ancients judged too haſtily of the effects of the overflowing of the Nile by thoſe produced by other rivers in other countries. They fancied that the ſwellings of the Nile muſt produce the ſame devaſtation with other rivers when they ſuddenly burſt their banks, and carried all before them *.

The origin which I have aſſigned to geometry among the Egyptians, is very natural, and ſufficiently honourable to that people, *viz.* the wiſdom and antiquity of their government. There is no occaſion to have recourſe to chimeras.

What I have now ſaid of the Egyptians, may be applied to the Babylonians. Their monarchy had its origin in the remoteſt ages [q], and they had practiſed agriculture from time immemorial [r]. The ancients are agreed alſo, that this people were among the firſt who ſtudied aſtronomy with ſucceſs [ſ]. The Babylonians, therefore, muſt very ſoon have had ſome ideas of geometry, and ſome knowledge of proportions. For how could they make any progreſs in aſtronomy without an acquaintance with certain principles of geometry? Accordingly an author, who had made antiquities very much his ſtudy, and lived when there were more monuments of them remaining than there are at preſent, aſcribes the invention of geometry to the Babylonians, aſſigning only the ſecond place to the Egyptians [t]. But however this may be, it is very certain

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* Though the greateſt part of the ancients have fallen into the miſtake which I have rejected, there are ſome who have avoided it. Herodotus, whoſe ſentiments are of great weight in every thing relating to Egypt, is of opinion that geometry was invented in Egypt on account of that tribute which Seſoſtris impoſed on all the lands, l. 2. n. 109.

This author is certainly miſtaken as to the epocha of this invention; it was of a much earlier date than the reign of Seſoſtris. But it muſt be owned that Herodotus reaſons very juſtly, that it is impoſſible to levy a tax upon lands equitably without a menſuration of the quantity of their ſeveral diviſions. It is much more probable that this gave riſe to geometry, than the imaginary confuſion occaſioned by the overflowings of the Nile.

[q] *Supra,* b. 1. art. 3. p. 38. [r] *Supra,* b. 2. p. 86. & 87.

[ſ] *Supra,* l. 3. chap. 2. art. 2. p. 214.

[t] Caſſiodor. var. l. 3. epiſt. 52.

This aſſertion is very inconſiſtent with the vain pretenſions of the Egyptians. This people, who vainly boaſted that they had ſent colonies into all parts of the world, ſaid that Belus conducted one into Babylon. That having fixed his reſidence on the banks of Euphrates, he inſtituted an order of tain that the Babylonians were very early acquainted with the fundamental principles of geometry.

With reſpect to the Phœnicians, all authors acknowledge them to have been the firſt and moſt expert navigators of antiquity. Navigation is, unqueſtionably, that branch of the arts and ſciences, in which mankind have diſplayed the greateſt genius and invention. When we examine the ſtructure of a ſhip, the number and variety of its parts, and when we reflect how much ſkill is neceſſary to join all theſe parts together in the beſt manner, we will be fully convinced, that the inventors of ſuch a complicated machine muſt have had great knowledge in mechanics, and conſequently in the firſt principles of geometry.

But it may perhaps be ſaid, that the ſhips of theſe remote ages were very inconſiderable, and their conſtruction required not much art.

I do not pretend to make any compariſon between the firſt veſſels of the Phœnicians, and our modern ſhips. Yet we muſt not imagine they were ſo contemptible, nor form our ideas of them from the little boats we ſee uſed at preſent by ſeveral nations in both continents. The long voyages which the Phœnicians undertook upon the ocean, the great quantities of merchandiſe with which their ſhips were loaden [u], are quite inconſiſtent with ſuch ideas. I repeat it again, that it was impoſſible for that people to have acquired ſo much ſkill in navigation, in the conſtructing and ſailing of ſhips, by mere practice, without ſome ſyſtem of rules and principles.

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of prieſts after the Egyptian model. Theſe prieſts were the ſame which were afterwards called Chaldeans, and applied to the ſtudy of aſtronomy, in imitation of the Egyptians. So it was from Egypt, ſay they, that they derived all their learning. Diod. l. 1. p. 32. & 92.

But this fable invented by the vanity of the Egyptians, could have been believed by none but the Greeks, who were abſolutely ignorant of the true hiſtory of the people of Aſia. See Perizon. origin. Babyl. c. 5.; Stanley, hiſt. philoſ. Chald. &c.

[u] See *infra*, b. 4. chap. 2.

ARTICLE IV.

Mechanics.

NO branch of the mathematics was ſooner ſtudied and practiſed than mechanics. Navigation, architecture, and every other art deſigned for the ſupply of all our various wants, require the aſſiſtance of mechanics. For which reaſon they are denominated the mechanic arts.

Notwithſtanding this, mechanics was probably the laſt branch of the mathematics which was reduced into a regular ſyſtem. In this reſpect it is much more modern than geometry. It might ſeem, therefore, ſuperfluous to ſpeak of this at preſent as a ſcience, which we have already conſidered as an art. But as the uſe of weights and meaſures, which we are certain was known in the days of Abraham, neceſſarily ſuppoſes the uſe of the balance, and as the balance is a kind of machine which requires the knowledge of the firſt principles of the equilibrium, we cannot ſay that the theory of mechanics was altogether unknown in the ages we are now examining.

I readily confeſs, that this theory was moſt imperfect, and, in general, that the progreſs of mechanics conſidered as a ſcience was extremely ſlow. I ſhall not attempt to trace it ſtep by ſtep, but content myſelf with pointing out the way in which I imagine the balance was invented.

The firſt men were daily under the neceſſity of cutting wood. Before the invention of wheel-carriages, or the uſe of beaſts of burden, they were obliged to carry the timber they had cut upon their ſhoulders. They would ſoon obſerve, that the poſition of the pieces of timber which they carried, was not a matter of indifference, but fatigued them more or leſs according as the part which reſted upon the ſhoulder was more or leſs diſtant from the extremities. As theſe pieces would frequently be nearly of an uniform thickneſs, they would in time diſcover that they carried them with the greateſt eaſe, when they ſupported them by the middle. In this poſition, their load would, if we may ſo ſpeak, maintain itſelf *. From this they would quickly diſcover, that a body of an uniform thickneſs remained in a ſtate of reſt, when ſupported or ſuſpended by the middle of its length; but that in every other poſition the longeſt end preponderated. By natural conſequence, they would find out, that when the middle was the ſuſtaining point, if any new weight was added to either end, it would deſtroy the equilibrium. This was enough to ſuggeſt the idea of the common balance. The invention of fitting ſcales to each end, probably came from the cuſtom of carrying large bundles at the extremities of a ſtick over the ſhoulder, to prevent their embarraſſing the free movement of the limbs †.

When I ſay that the balance was known in the ages we are now upon, I mean only the common balance. I am far from thinking they had any idea of the ſteelyard, or ſuch like machines. I will not even affirm, that the balance of the firſt ages was like ours compoſed of a beam, of a needle with two cheeks, and of two ſcales. Perhaps their balance was no more than a beam ſuſpended by the middle, at one end of which they hung the weights, and at the other the goods which were to be weighed. Nay, perhaps, they contented themſelves with placing a board in equilibrium on the common centre of its length and thickneſs, and then placing on one ſide the weights, and on the other the goods to be weighed, at equal diſtances from that common centre. All that we know with certainty, is, that in Abraham's time they had balances [z]. We are at liberty to ſuppoſe them as ſimple in their mechaniſm as we pleaſe.

I might ſpeak of ſeveral other machines which muſt have been invented in the remoteſt ages. The lever and the wedge, muſt have been in uſe from the very commencement of ſociety. Without theſe they could not have performed

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* In this manner, we ſee our watermen, every day, carrying oars of a great length and thickneſs, in equilibrium, without being obliged to hold them with their hands.

† We daily ſee country-people carrying large bundles at the end of a ſtick over their ſhoulders in this manner.

[z] Gen. c. 23, v. 16.

formed ſeveral works, ſuch as the tower of Babel, for example, which we know were executed in the ages we are now conſidering.

We muſt rank alſo different kinds of machines for tranſporting great weights, among the firſt mechanical inventions. The ſledge muſt have been the firſt invented. They would next contrive to lay their weights on rollers; an invention which nature herſelf indicates, and which has been uſed in the remoteſt ages. They would next reflect, that if they could join the ſledge to the rollers, without impeding their turning round, it would much leſſen their labour. By theſe ſteps they came at laſt to the diſcovery of wheels; and thus the ſledge gradually roſe from the ground into machines, with two or four wheels. This laſt diſcovery may be traced up very high. Chariots were known in ſeveral countries, in very ancient times. They were common in Egypt in the days of Jacob [y]. I may obſerve further, that, according to all appearance, their wheels in theſe firſt ages were not compoſed of fillies and ſpokes, but of one ſolid piece, as the wheels of carriages in Japan are at preſent [z].

Beſides, the make and uſe of the machines which I have mentioned, were not, in the firſt ages, directed by any theory. Mechanics had then no other guide, but random trials, and the beaten path of practice. We ſhall ſee reaſon to be of this opinion, as we come to fix the time of each invention in the courſe of this work.

There is no neceſſity, I imagine, to enlarge any further on the origin and progreſs of mechanics, conſidered as a ſcience. If any one, taking this term in a more extenſive ſenſe, deſires further light into this ſubject, he may find ſatisfaction, in what we have ſaid in the article of the arts. He may alſo, from the plan which I have laid down, amuſe himſelf with drawing ſuch conſequences from each particular invention, as may ſeem to him moſt ſimple and natural.

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[y] Gen. c. 41. v. 43. c. 45. v. 19.

[z] Kœmpfer, hiſt. du Japon, t. 3. p. 218.

ARTICLE V.

Geography.

GEography is, properly, the art of determining the reciprocal diſtances of different places on the terreſtrial globe, their ſituation with reſpect to one another, and their poſition with reſpect to certain imaginary points in the heavens. This determination cannot be made with exactneſs and preciſion, without the help of aſtronomy and geometry, and the continual uſe of ſuch operations as are founded on theſe ſciences. We have juſt been ſhewing the great imperfection of the mathematics in the ages we are now examining, and therefore we cannot entertain a very high idea of the geography of the men of theſe times. We cannot, however, deny them ſome ſlender hints and confuſed notions of this ſcience. We have before given the name of arithmetic to certain notions about the nature and calculation of numbers, which may rather be regarded as the effect of a kind of inſtinct, than the fruit of reaſoning and reflection. I think we may venture, therefore, to give the name of geography to the methods practiſed, in the firſt ages, for diſcovering and determining the diſtance and relative poſition of certain places. Some ſuch methods were ſo extremely neceſſary, and men were obliged to ſtudy and ſearch for them with ſo much earneſtneſs, that they could not long remain undiſcovered.

I have ſaid, in the firſt book, that the diſperſion of families was the immediate conſequence of the confuſion of tongues. The firſt colonies which were formed, probably wandered from place to place, till they found a convenient ſpot to ſettle in. Such countries as furniſhed ſpontaneouſly the greateſt quantities of the neceſſaries of life, would be firſt inhabited. But each climate contains but a few of theſe fertile happy ſpots. They are commonly ſeparated from one another, by a great extent of dry and barren ſoil. It would be long before theſe intermediate waſtes were inhabited. The firſt colonies, of conſequence, would remain ſeparated and at a diſtance from one another for ſome time. The great difficulty of finding their way through theſe uncultivated deſerts, would deter the firſt men from wandering far from their habitations. But as ſoon as ſocieties were become numerous, ſeveral motives would determine men to undertake more diſtant journeys. There were then no beaten roads. The fear of loſing themſelves would put them upon contriving ſome methods of finding their way back into their own country in caſe of need.

It is probable they would firſt take particular notice of the obſtacles they met with, ſuch as marſhes, rivers, mountains, precipices, and impenetrable foreſts. They would remark alſo valleys, hills, lakes, meadows, rocks, in a word, every thing that ſenſibly ſtruck their eyes, and might ſerve as a mark to diſtinguiſh one country from another. The firſt travellers would contrive certain marks to know and diſcover the roads they were to take, as well as the obſtacles they were to meet with. It would be ſufficient for this purpoſe to ſet up ſtones or ſtakes at certain diſtances, or to make marks on the barks of trees, as the ſavages do at preſent [a]. The uſe of ſuch marks was probably the firſt thing that gave men any ideas of the relative poſition of different diſtricts. Add to this, the obſervations which they might make on the courſe of the ſun, reſpecting the pointing and direction of their roads.

The firſt travellers, we may be ſure, would alſo take particular notice of the number of days they took in travelling from one diſtrict to another. Nothing more frequent in the ſacred books than this expreſſion, *Such a city is ſo many days journey from ſuch another city* [b]. It is in this manner ſeveral nations ſtill compute the diſtance of one coun-

[a] See le voyage du Baron de la Hontan, t. 1. p. 223; Mœurs des ſauvag. t. 2. p. 240.; Voyage de Dampier, t. 4. p. 244.

[b] Gen. c. 30. v. 36. Num. c. 11. v. 31. &c.

In Cæſar's time the Germans computed diſtances by days journeys. *De bello Gall. l. 6. c. 23.*

try from another. This obſervation of the number of days which travellers took to paſs from one place to another, was the firſt, and for a long time the only meaſure of diſtance between the ſeveral parts of our globe.

Theſe beginnings of geography then were nothing more than a kind of imperfect gueſs at the diſtances and reſpective ſituations of certain countries. To this all their inquiries on this ſubject were probably confined for ſome ages. But as ſoon as theſe diſtinct ſocieties became populous, and opened a frequent intercourſe with one another, theſe firſt diſcoveries would be rendered more perfect, and new ones would be made. Then highways began to be formed, which muſt have contributed very much to the improvement of geography. Beſides, how could men direct their courſe through a great extent of country, without ſome imperfect knowledge, at leaſt, of the poſition of places, with reſpect to the principal points of the horizon? The obſervation of theſe points was ſtill more neceſſary, when they traverſed the extenſive deſerts which in the firſt ages often divided one nation from another. It is even difficult to conceive how theſe journeys could be frequently repeated, without ſome rude kind of delineation or painting of the poſition of the ſeveral countries through which they were to paſs [c]. The firſt journey from one country to another was probably the effect of chance, but ſubſequent ones would be the fruit of reflection. I am perſuaded, therefore, that, for the benefit of commerce, ſome method of preſerving and delineating on ſome durable materials, the obſervations which travellers had made on roads and diſtances, was very ſoon found out. The contrivances of the ſavages of America may enable us to form ſome idea of thoſe of ancient times. Theſe people have the art of drawing on ſkins or barks of trees, a kind of geographical maps, more exact than we can well imagine [d]. Theſe they preſerve in their public repoſitories, and have recourſe to them when they have occaſion [e].

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[c] L'Eſcarbot, hiſt. de la N. France, p. 371; N. relat. de la Gaſpeſie, p. 155.; Hiſt. gen. des voyag. t. 3. p. 104. & 417. t. 2. p. 499.

[d] Voyage de la Hontan, t. 1. p. 223. t. 2. p. 106. & 107; N. relat. de la Gaſpeſie, p. 153.; Mœurs des ſauvag. t. 1. p. 225.

[e] Ibid.

The firſt maps, if we may give them that name, muſt have been very imperfect. How could the firſt geographical productions of mankind be juſt or exact, when they ſcarce had any idea of the moſt eſſential operations of geometry and aſtronomy? Beſides, it is certain that they were quite ignorant of the ſphericity of the earth, judging of its figure by its appearance. Not being able to carry the diſcoveries of their reaſon beyond the informations of their eyes, they believed our globe to be a plain of an immenſe extent. They could not therefore have the ſmalleſt notion of *projection*, which is one of the principal branches of the art of drawing geographical charts or maps. Theſe diſcoveries were reſerved for ages greatly poſterior to thoſe we are now conſidering. In proceſs of time, geometry and aſtronomy adminiſtered theſe helps to geography, without which it muſt have remained in its primitive ſtate of imperfection: though it muſt be owned, that theſe two ſciences were indebted for a great part of their progreſs, to the great neceſſity men were under of cultivating and improving geography.

There are many other arguments, beſides all we have yet ſaid, to prove the great antiquity of geography. In the ages we are now examining, there had been conqueſts, there had been diviſions of territories among the children of the princes who governed them. There had been alſo long voyages and journeys by ſea and land.

The ancient traditions concerning the travels and conqueſts of Bacchus and Oſiris, the expeditions of Ninus and Semiramis, the great extent of the empire formed in Europe, Africa, and ſome parts of Aſia, by the Titans, are ſo many proofs of the knowledge which mankind had of geography in the firſt ages. Next to travelling, we may conſider war as one of the ſtrongeſt motives to the ſtudy of the ſituation and other circumſtances of different countries. Without ſome knowledge of this ſcience, it is difficult, if not impoſſible, to incamp, to march, and to ſubſiſt an army. It is true, that for the firſt time they muſt have advanced at random. But the deſire of ſecuring a retreat, in caſe of a repulſe, the neceſſity of ſtaying longer in a country than they had deſigned, the ambition of ſucceeding in an enterpriſe, which had formerly miſcarried for want of a proper knowledge of the country, would put them upon making obſervations for their future direction, and profiting by their firſt diſcoveries. The experience of what had happened, would contribute very much to the invention of the art of delineating the reſpective ſituations of the countries which they had traverſed.

We know, likewiſe, that it was a common practice in the primitive times, that when a monarch, at his death, left ſeveral ſons, the provinces which compoſed his empire, were divided amongſt them. What is more famous in hiſtory than the diviſion of the world between Jupiter, Neptune, and Pluto? Theſe remote events are indeed much involved in fables, but we may ſtill diſcern in them the veſtiges of the cuſtoms of the moſt ancient ages. But how was it poſſible to make ſuch partitions with any kind of equality, without ſome knowledge of the number, extent, quality, and ſituation of the provinces of which an empire was compoſed? The limits of each province muſt then have been known and ſettled. This ſuppoſes ſome ſort of geography.

Navigation muſt alſo have contributed very much to the origin and progreſs of this ſcience. The migrations of ſome families from Aſia and Egypt into Europe, are exceeding ancient. Several colonies from theſe countries had ſettled in Greece before the death of Jacob [f].

Theſe maritime enterpriſes are a clear proof of the early attention of mankind to the ſituation and diſtances of countries. The firſt navigators, no doubt, abandoned themſelves very much to chance. But it is highly probable, that mankind would take all poſſible pains to inform themſelves as ſoon as they could, of the diſtance and ſituation of the countries to which they deſigned to ſail. After ſome time, they would come to know the courſe which they were to ſteer, in order to arrive in one country rather than in another, the time that would be neceſſary to perform their voyage, and conſequently would conduct their ſhip by this knowledge.

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[f] See *ſupra*, b. 1. art. 5. p. 64. & 67.

Though, in theſe firſt ages, they kept as near the coaſts as poſſible, yet they muſt ſometimes have loſt ſight of land, and been drove off to ſea. We ſee indeed in the relations of the ancients, that when a ſhip was driven from her courſe by ſtorms, the crew were almoſt always ignorant of the coaſt on which they were caſt. Accordingly, I do not pretend that mariners were then acquainted with the whole extent of the ocean and it's coaſts, as they are at preſent. But ſtill we may affirm, with truth, that, excepting in theſe unexpected caſes, mariners had then a general knowledge of the countries to which they deſigned to ſail.

In ſpeaking of the improvements in geography, occaſioned by military expeditions, the partition of empires, and navigation, I have mentioned the greateſt part of the hiſtorical facts which prove the antiquity of this ſcience. There are ſtill ſome however yet unnoted, which may perhaps appear even more concluſive than thoſe we have already mentioned.

Among the ſeveral ſciences which the Egyptians pretended to have invented, they did not forget geography. According to their ancient traditions, it was Hermes or Mercury who taught them the firſt principles of this ſcience. In the catalogue which Clement of Alexandria has given us of the writings of Hermes, there were ten books which were ſaid to be the particular ſtudy of the chief prieſt. The ſubjects of theſe books were, coſmography, geography, the firſt elements of aſtronomy, the chorography of Egypt, and the deſcription of the courſe of the Nile [g]. It is true, if we had no other authority but theſe books of Mercury, to prove that the Egyptians had ſome knowledge of geography in the moſt remote times, I ſhould not look upon this fact as very well atteſted. But I think we may diſcern evidences of this ſcience, in the relation which Moſes gives us of the conduct of Joſeph, when Pharaoh had conſtituted him his prime miniſter. The ſacred hiſtorian repreſents this patriarch viſiting all the different provinces of Egypt [h]. His deſign was to examine their condi-

[g] Strom. l. 6. p. 755.

[h] Gen. c. 41. v. 46.

tion, and take proper meaſures to ſecure them againſt the fatal conſequences of the ſeven years of barrenneſs. This fact inclines me to think, that the Egyptians had very ſoon found out ſome method of determining the ſituation and relative poſition of the different diſtricts of their empire, without which it could not have been divided into a certain number of provinces or departments in the days of Joſeph [i].

The ſacred books afford us a ſtill more direct evidence of the great antiquity of this ſcience, in the deſcription of the terreſtrial paradiſe. When we examine with attention the manner in which Moſes ſpeaks of this abode of the firſt man, we diſcern plainly in it all the peculiar characteriſtics of a geographical deſcription. He ſays, that this garden was ſituated in the country of Eden, towards the eaſt; that a river went out of Eden, and then divided into four branches. He deſcribes the courſe of each of theſe four branches, and names the countries which they watered. Nay, he does more; he enters into a long enumeration of the various productions of each of theſe countries. He even deſcribes them in a very particular manner. The ſacred hiſtorian does not content himſelf with ſaying that the country of Havilah produced gold; he adds, that the gold of that country was exceeding fine. There too, ſays he, is bdellium, and the onyx-ſtone [k]. Such circumſtantial deſcriptions prove, that geography had made conſiderable progreſs before the days of Moſes.

We might draw very concluſive proofs of this from the travels of Abraham, Iſaac, and Jacob. Nothing can be more diſtinct than the deſcription of the ſituation and names of the different cities and countries which theſe patriarchs viſited. Moſes could not have given this exact account of the topography of ſo many countries, unleſs care had been taken, in the remoteſt ages, to make obſervations on the diſtance, ſituation, and nature of the different countries which had been diſcovered. Conſequently ſome of the ſimpleſt operations of geography were invented in theſe ancient times.

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[i] Gen. c. 41. v. 57.

[k] Ibid. c. 2. v. 10. & ſeq.

The bdellium is a gum which diſtils from a tree very common in Arabia and ſeveral parts of the eaſt. Pliny ſpeaks fully of it, l. 12. c. 19.

What we have here ſaid of the ſtate of this ſcience, may ſuffice at preſent. Nor can we expect much greater light into this matter. The hiſtory of the ages we are now examining, is not ſo thoroughly known, as to enable us to trace the progreſs of geography ſtep by ſtep. We know only enough to convince us, that ſeveral nations, in theſe diſtant ages, were not quite ſtrangers to the firſt elements of this moſt uſeful and neceſſary ſcience.

ARTICLE VI.

Reflections upon the origin and progreſs of ſciences in Aſia and Egypt.

WE ſee from all that has been ſaid, that the origin of the ſciences may be traced up to the ages very near the deluge, in Egypt, and in ſeveral parts of Aſia. It would be ſuperfluous to produce any further proof of this. But it may not be improper to examine why theſe nations I have mentioned, were the firſt who diſtinguiſhed themſelves by their diſcoveries.

The ſciences could not proſper, but in proportion to the progreſs of the arts. Men would labour to procure the neceſſaries of life, before they thought of its ornaments and ſuperfluities. We may compare the men of the firſt ages, after the confuſion of tongues and diſperſion of families, to the ſavage nations of the preſent age. Like them they formed ſocieties, but theſe ſocieties were far from being numerous. Yet nothing but the great number of citizens in a ſtate can occaſion the flouriſhing of the arts and ſciences. Accordingly we ſee, that, in all ages, it was great empires only which enjoyed this advantage. In theſe great ſtates, the perfection of the arts, and eſpecially of agriculture, procured that leiſure to a conſiderable number of men, which is ſo neceſſary to ſtudy and ſpeculation. Theſe men, relieved of all thought and care about the neceſſaries of life, found their minds at liberty to take a nobler flight, and exert all the force of their genius in the cultivation of the arts and ſciences. Hence it was that ſome nations made greater and more rapid progreſs than others, which were not ſo well civilized.

The Babylonians, Aſſyrians, and Egyptians, had the advantage of being formed into regular well-conſtituted ſtates, before any other ancient nations. They were conſequently ſooner civilized, and applied themſelves to the cultivation of the arts and ſciences. Their progreſs in theſe ſtudies would be the more rapid, as theſe empires were not, as far as we know, diſturbed by any wars or tumults. It is certain, that the Egyptian monarchy, in particular, enjoyed the moſt profound tranquillity from the beginning [l].

Babylonia, Aſſyria, and Egypt, by this means, would ſoon become very populous. A populous and well-governed ſtate muſt ſoon acquire plenty. This plenty and tranquillity which the Babylonians, Aſſyrians, and Egyptians enjoyed in the firſt ages after the flood, ſet their minds at eaſe to purſue their ſtudies, and even engage in the moſt abſtract inquiries. In each of theſe empires there were great numbers of citizens who found themſelves exempted from all the laborious depreſſing offices of life. This eaſe and leiſure enabled ſome of them to devote their whole lives to ſtudy. This is a reflection which has not eſcaped the beſt writers of antiquity. Ariſtotle, inquiring into the native country of the ſciences, declares that they muſt have had their origin in thoſe countries where the inhabitants enjoyed great leiſure. This is the reaſon which he gives for the great progreſs the Egyptians had made in mathematics. In that country, ſays he, the prieſts applied themſelves wholly to ſtudy [m].

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[l] Strabo, l. 17. p. 1174.

[m] Metaphyſ. l. 1. c. 1. p. 840.

The prieſts in Egypt were the ſole depoſitaries of their hiſtory and ſcien-

The ſame reaſons will hold good with reſpect to the Babylonians. Among that people, the Chaldeans formed a body diſtinct from the reſt of the citizens [n]. Their way of life very much reſembled that of the Egyptian prieſts. Study was their only buſineſs, The laws exempted them from every other function [o]. Such inſtitutions could not but contribute greatly to the improvement of human knowledge. But ſuch inſtitutions could only take place in great and populous ſtates, which could allow a conſiderable number of their citizens to enjoy that repoſe and leiſure ſo neceſſary to the ſtudy of the arts and ſciences.

The Phœnicians are an exception to this general rule. Though a ſmall nation, they were very ſoon illuſtrious for their knowledge and their diſcoveries. The occaſion of the uncommon excellence of this people in the ſciences, was their peculiar turn and early inclination to commerce and navigation [p]. To ſucceed in this, various branches of knowledge, ſuch as arithmetic, aſtronomy, geography, geometry, and mechanics, were abſolutely neceſſary. For which reaſon, though it was not poſſible that any conſiderable number of the Phœnicians could enjoy ſuch a degree of leiſure, as to give themſelves entirely up to the ſtudy of the abſtracted ſciences; yet the whole ſtate being engaged in a way of life which required the knowledge of theſe ſciences, every individual would contribute ſomething to their improvement.

It is not difficult, therefore, to diſcover why the ſciences had their origin in thoſe countries which were firſt civilized. Hiſtory confirms the reaſons we have given for this. In the ages we are now conſidering, we meet with ſcience and learning only in Egypt, and ſome parts of Aſia. For the ſame reaſon alſo, the European nations have furniſhed us no materials for this part of our work. It was much later before theſe countries were well peopled, before their inhabitants were ci-

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ces. When Herodotus, Plato, Diodorus, relate any fact, they always tell us they received it from the mouth of the prieſts.

[n] Strabo, l. 16. p. 1090.

[o] Diod. l. 2. p. 142.

[p] See *infra*, b. 4. c. 2.

vilized, and formed into regular ſtates and kingdoms. Beſides, the firſt inhabitants of Europe ſeem to have had leſs genius for diſcovery and invention than the eaſtern nations. They knew nothing of arts or ſciences till after the arrival of colonies among them from Aſia and Egypt. It is for this reaſon that the hiſtory of Europe is almoſt quite barren, till the arrival of theſe colonies.

We may, however, obſerve that the progreſs of the arts and ſciences in the firſt ages was exceeding ſlow, even among thoſe nations who purſued them with the greateſt conſtancy and keenneſs. The tedious imperfect methods they had of recording their thoughts, muſt have formed a very great obſtacle to the improvement of human knowledge. For many ages mankind knew no better ways of writing than painting and hieroglyphics[q]. Both theſe ways of writing are extremely defective. They are capable only of repreſenting ſenſible objects. Symbols are quite unfit for communicating, with preciſion, abſtract ideas. For which reaſon, mathematics in particular could make but little progreſs, till after the invention of alphabetical writing.

This invention has, no doubt, contributed infinitely to the perfection and progreſs of the ſciences. Yet at firſt its utility muſt have been inconſiderable. It is only by communicating their ideas that men can improve their diſcoveries. But the mere invention of letters was not ſufficient for this purpoſe. They wanted ſome kind of matter, flexible, and eaſily tranſported, on which they might write long diſcourſes with eaſe and expedition. This was not diſcovered till long after. Marble, ſtone, brick, metals, wood, &c. were at firſt uſed for writing, or rather ingraving upon[r]. When ſo much time was neceſſary to write a few ſentences, it could not be expected that the ſciences ſhould make a very rapid progreſs. Beſides, theſe kind of books could not be tranſported from place to place, but with great difficulty. Accordingly we find that the ſciences remained in a ſtate of great imperfection among all the ancient nations, of which we ſhall find more than ſufficient proof in the courſe of this work. Human knowledge has made greater progreſs within theſe laſt hundred years, than in all antiquity; which is chiefly owing to the expeditious and eaſy methods we have of communicating and publiſhing all our diſcoveries.

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[q] See *ſupra*, b. 2. chap. 6.

[r] See *ſupra*, b. 2. chap. 6. p. 187. & 188.

BOOK IV.

Of Commerce and Navigation.

IT is unneceſſary to diſplay the great importance of commerce, or enumerate the advantages which mankind have in all ages derived from it. Every one knows, that it is the ſoul and ſupport of ſtates; the chain which unites all nations and climates. To produce all theſe advantages, it was neceſſary to open a communication between the ſeveral parts of this terraqueous globe, by inventing the art of traverſing the ſeas which ſeparate one part of it from another. Commerce, therefore, is indebted to navigation for its greateſt ſucceſs, and navigation is reciprocally indebted to commerce for all its improvements and diſcoveries. Theſe two objects mutually ſupport each other. They are always ſeen to flouriſh or to fall together. They cannot, therefore, be well conſidered ſeparately. Yet, as it was commerce that gave birth to navigation as an art, it will be proper to begin with commerce.

CHAP. I.

Of Commerce.

THE origin of commerce is almoſt as ancient as that of ſocieties. The inequality with which the productions of nature are diſtributed in each country, gave occaſion to traffic among mankind. Commerce begun by exchanges between particular perſons, and by ſlow degrees it ſpread from village to village, city to city, province to province, kingdom to kingdom, till at laſt it comprehended and united the whole world. Neceſſity was the parent of commerce. The deſire of procuring conveniencies, nouriſhed and gave it ſtrength. Covetouſneſs, luxury, and, above all, a taſte for ſuperfluities, brought it at length to the higheſt perfection.

Agriculture and induſtry are the foundations of commerce. In the firſt ages, when the greateſt part of mankind were ignorant of the moſt neceſſary arts, and led a life but little different from that of beaſts, traffic and commerce were quite unknown. Modern travellers have met with nations who are ſtill in this deplorable condition [a]. Families being by inſenſible degrees reunited, theſe infant ſocieties were chiefly taken up in providing the neceſſary means of their ſubſiſtence. From thence a certain intercourſe and communication muſt have commenced among the inhabitants of the ſame country. Such unqueſtionably was the firſt origin of commerce.

Commerce conſiſted at firſt in the exchange of thoſe things which are moſt neceſſary to human life. One who had killed a great many beaſts in hunting, exchanged their fleſh and ſkins, for the honey and fruits which his neighbour had gathered in the woods. The huſbandman exchanged a part of his grain, for wine and oil, &c. Several nations on the coaſts of Africa, all the ſavages of America, and ſome of the people of Aſia, ſtill retain this primitive practice, of giving their ſuperfluities for thoſe things which they want, or which they have not in ſufficient quantity. Commerce is carried on by all theſe nations at preſent, as it was in the primitive ages, that is, by exchange.

Originally they had no ſettled rule for appretiating their commodities. Opinion alone determined their value and their price. They judged by the eye of the quantity, weight, and bulk of the goods they had a mind to exchange. This was the only way of traffic known in the iſland of Formoſa, when the Dutch firſt diſcovered it [b]. It is ſtill practiſed in ſeveral countries. Gold is to this day the principal merchandiſe of Ethiopia. The greateſt trade in it is carried on at Sofala. This trade is not managed by weights and meaſures, but only by the eſtimation of the eye [c]. It is the ſame in ſome parts of the Eaſt Indies [d].

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[a] Recueil des voyages qui ont ſervi à l'établiſſement de la compagnie des Indes Holland. t. 4. p. 586.

[b] Rep. des lettr. t. 33. p. 523.

In proportion as ſocieties were poliſhed, the objects of commerce were multiplied and diverſified. The wants of nature gave birth to the moſt neceſſary arts. Theſe were ſoon followed by the arts adminiſtering to luxury and ſuperfluity. New wants were invented, as ſoon as new arts were diſcovered; and mankind cheriſhed new taſtes and inclinations, when they had found out the means of gratifying them. In conſequence of this, commerce was extended and increaſed. It then became neceſſary to find out ſome more certain method of judging of the value of commodities, than by the eye.

I have ſhown in the article of geometry, how the firſt attempts in architecture produced the ſeveral meaſures of length, and that theſe meaſures, for the moſt part, bore a relation to the ſize of the human body, or ſome of its parts [e]. It was eaſy to apply theſe meaſures to determine the bulk of the greateſt part of ſolid bodies. Thus menſuration by fathoms, ells, &c. was very early practiſed. It was, no doubt, more difficult, and required more reflection, to diſcover the method of meaſuring liquids. It could not, however, be very hard to find out, that they might determine the quantity of grain or liquids, by forming veſſels of certain dimenſions, according to the lineal meaſures already known.

The primitive traders had nothing now to do, but to find out ſome method to ſet a value upon metals and ſome other bodies which could not well be ſubjected to lineal or liquid meaſures. The diſcovery of weights and balances muſt have coſt a greater expenſe of thought, than thoſe meaſures we have mentioned. The relation between the weight of a body and its ſolid contents, is not quite ſo obvious, as the application of lineal meaſures, or the equality of the dimenſions of a veſſel, and of the quantity of liquids it can contain. Beſides, ſuppoſing this relation already known, it required much conſideration and many trials to invent inſtruments proper for weighing bodies. Yet we ſee that the invention of the balance was extremely ancient, ſince we find it was known in the days of Abraham [f]. I have propoſed, in the preceding book, ſome conjectures concerning the invention of that machine, to which I have nothing to add at preſent [g]. I ſhall only obſerve, that ſtones, as far as we can judge, were the firſt bodies uſed as weights [h].

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[c] Huet. hiſt. du commerce, p. 60.

[d] Voyage de Dampier, t. 2. p. 111.

[e] *Supra*, b. 3. chap. 2. art. 3. p. 252.

The invention of weights and meaſures would neceſſarily introduce great changes into the way of trade, and contribute greatly to its improvement. Men would ſoon diſcover the inconveniencies of trading only by exchange. On a thouſand occaſions they would find it impoſſible, to give exactly an equal value of one kind of goods for another which they had a mind to purchaſe; as it is ſeldom one thing is preciſely of an equal value with another. Beſides, it would often happen, that the buyer had not that particular kind of goods which the ſeller wanted in exchange for his. We may add further, that ſeveral kinds of merchandiſe could not be divided without being deſtroyed, or at leaſt very much diminiſhed in their value. It was found neceſſary, therefore, in order to facilitate theſe exchanges, to introduce into trade, certain things of an arbitrary, but fixed and known value, which might repreſent all kinds of merchandiſe, and ſerve as a common price to all the objects of commerce. The ſituation of the different nations of the world determined their choice of the materials originally uſed for this purpoſe. In ſeveral countries, pieces of a particular kind of wood [i], ſhells of a certain ſpecies [k], grains of ſalt [l], fruits [m], &c. have been, and ſtill are uſed as the common ſigns and prices of all commodities. This was probably the practice of the primitive ages [n]. But theſe kinds of money could be current only each in its particular country, none of them could become univerſal.

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[f] Gen. c. 23. v. 16.

[g] Chap. 2. art. 3.

[h] See le P. Calmet, t. 2. p 829. & 830. t. 3. p. 771.

[i] Hiſt. gen. des voyag. t. 5. p. 31.

[k] Rec. des voyag. de la compagnie des Ind. Holland. t. 4. p. 305.

[l] Bibl. raiſonnée, t. 1. p. 58.; Lettr. édif. t. 4. p. 78. 79.

[m] Acoſta, hiſt. nat. des Indes Occident. l. 4. c. 3. fol. 132. *verſo.*; Tavernier, t. 3. p. 21. t. 4. p. 337.; Hiſt. gen. des voyag. t. 3. p. 324.

Civilized nations would ſoon be ſenſible of the inconvenience of theſe kinds of common ſigns and prices. The moment metals were diſcovered, it would be perceived that they were the moſt commodious materials in nature for theſe purpoſes in commerce. Metals are found almoſt in all climates. Their hardneſs and ſolidity preſerve them from many accidents, to which the other kinds of money I have mentioned are liable. They may be divided too into as many parts as it is thought proper, without any diminution of their real value. Metals, therefore, were very ſoon eſtabliſhed by the unanimous conſent of all nations, as the repreſentative ſigns of the value of all the objects of commerce.

We cannot fix the preciſe time when metals began to be the common price of all kinds of merchandiſe. It appears, that, in ſome countries, this inſtitution was exceeding ancient. Egypt was probably one of the countries where this kind of traffic was firſt uſed. We have ſeen above, in the article of metallurgy, that the diſcovery and fabrication of metals was of great antiquity among this people [o]. It has been remarked, that there is no mention in ſcripture of gold and ſilver as riches, before Abraham's journey into Egypt, but only after his return. Moſes obſerves, that this patriarch returned from Egypt exceeding rich in gold and ſilver [p]. With reſpect to Aſia, we ſee Abimelech, King of Gerar in Paleſtine, gave a thouſand pieces of ſilver to Abraham, for his taking of Sarah from him [q]. In a word, after that period, there is frequent mention in Geneſis of payments made in ſilver [r]. It is certain, then, that this kind of commerce prevailed in Egypt and Aſia in very ancient times.

When metals were firſt introduced into commerce, their value was determined only by their weight. The buyer and ſeller agreed about the quality and quantity of the metal to be given for the goods. The buyer delivered the quantity of metal agreed on by weight [s]. The ſcriptures preſent us with a remarkable example of this ancient way of buying and ſelling. We there read, that Abraham gave 400 ſhekels of ſilver for a cave, to be a ſepulchre for himſelf and his family. Moſes obſerves, that he weighed this ſum before all the people [t]. It was the weight, therefore, which then determined the quantity of metal to be given as the price of any purchaſe. It appears, however, that they paid ſome regard to the purity and fineneſs of the metal; for the ſacred writer obſerves, that the ſilver which Abraham gave was of the beſt kind, ſuch as was every where current [u].

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[n] See Cedren. p. 148. ; Suidas, *voce* Ἀσσάρια, t. 1. p. 347.

[o] B. 2. chap. 4. p. 149.

[p] Gen. c. 13. v. 2.

[q] Gen. c. 20. v. 16.

[r] Chap. 23. v. 16.

Theſe primitive practices ſtill ſubſiſt in ſeveral countries. In China gold and ſilver are not current as money, but only as merchandiſe. Accordingly, when they uſe theſe metals in payments, it is the cuſtom to cut them into pieces in proportion to the price of the goods they have purchaſed. They then weigh each piece of the metal to aſcertain its value [x]. It is the ſame in Abyſſinia [y] and Tonquin [z].

This method of weighing the quantity of metal in every payment made in gold and ſilver, muſt have been very troubleſome and inconvenient. It was eaſy to remedy this inconvenience. Nothing more was neceſſary than for each nation to fix a mark and impreſſion upon each piece of metal, ſignifying and aſcertaining its weight and fineneſs. It was proper likewiſe to agree on certain names to expreſs each of theſe portions of metal, deſigned for the repreſentative ſigns of all kinds of merchandiſe. Such was the origin of money. But it is very difficult, if not impoſſible, to fix the time of this invention. If we believe ſome writers, it belongs to very remote ages. They tell us, that the Aſſyrians were the firſt who ſtruck money, ſome time before the birth of Abraham [a]. According to Herodotus, it was the Lydians [b]; and it appears that this art was very ancient among that people [c]. Other writers place the origin of money in the times when Saturn and Jupiter reigned in Italy [d]. Some give the honour of this invention to a King of Theſſaly, named *Ithonus* [e], ſaid to be the ſon of Deucalion [f]. The annals of China relate, that in the reign of Hoang-ti, that is, near 2000 years before J. C. they ſtruck copper money for the convenience of commerce [g]. We read too in Diodorus, that in Egypt they cut off both the hands of ſuch as were convicted of making falſe money [h]. But as that author does not fix any date to the ſeveral regulations he mentions, we can determine nothing, from what he ſays, concerning the period when they firſt coined money in Egypt.

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[s] Ariſt. polit. l. 1. c. 9. p. 305. E. See alſo Plin. l. 33. ſect. 13. p. 610.

[t] Gen. c. 23. v. 16.

[u] Ibid.

[x] Martini, hiſt. de la Chine, l. 8. t. 2. p. 259.; Lettr. édif. t. 19. p. 432.; Rec. des voyag. au Nord, t. 8. p. 363.; Rec. des voyages de la compagnie des Indes Holland. t. 1. p. 364. & 442.

[y] Ibid. t. 4. p. 32.

[z] Tavernier, t. 3. p. 221.

As to the ſacred writings, we find ſome paſſages in Geneſis, which ſeem to indicate, that another method of fixing a certain value upon pieces of metal, beſides that of weighing them, was very anciently known in theſe countries. Moſes ſays, that Abimelech gave Abraham 1000 pieces of ſilver [i]. Joſeph was ſold by his brethren to the Midianitiſh merchants for twenty pieces of ſilver [k]. It is ſaid alſo, that this patriarch made a preſent to Benjamin of 300 pieces of ſilver [l]. In all theſe paſſages there is no mention of the weight of ſilver, but only of the number of pieces. What is more, we read, that Jacob bought a field from the children of Hamor for an hundred *Keſitah* [m]. Interpreters are much divided about the meaning of this word. In general, however, they are of opinion that this paſſage ſpeaks of a certain ſum of ſilver.

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[a] Mem. de Trev. Mai 1704, p. 787. [b] L. 1. n. 94.

[c] See la bibl. choiſ. t. 11. p. 13.

[d] Ovid. Faſtor. l. 1. v. 239.; Draco Corcyræus *apud* Athen. l. 15. c. 13. p. 692.; Macrob. Saturn. l. 1. c. 7. p. 217.; Iſidor. orig. l 16. c. 17.

Several critics are of opinion, that the Janus of the ancients is the ſame with Javan the ſon of Japhet, mentioned Gen. c. 10. v. 2.

[e] Lucan. Pharſal. l. 6. v. 402. &c.

[f] Otho Sperling. de numm *non cuſis*, p. 13.

[g] Martini, hiſt. de la Chine, l. 1. p. 42.

[h] L. 1. p. 89. [i] Gen. c. 20. v. 16.

[k] Ibid. c. 37. v. 28. [l] Ibid. c. 45. v. 22.

[m] Ibid. c. 33. v. 19.

But had that ſilver any impreſſion upon it? in a word, were thoſe pieces which Moſes ſpeaks of, pieces of coined money? The difficulty conſiſts in determining this. The greateſt number of commentators maintain, that this word, *Keſitah*, ſignifies a piece of money with the impreſſion of a lamb [n] upon it. This opinion appears to me the more probable, as we know very well that the figures of animals were the firſt impreſſions upon the money of the ancient nations [o]. I am perſuaded, therefore, that the art of impreſſing certain marks upon pieces of metal, to point out and aſcertain their value, was known and practiſed in ſome countries in the days of Jacob; in ſome countries, I ſay, for I am far from thinking that the uſe of ſuch money was very general.

Beſides, it does not ſeem to me, that the invention of this firſt ſpecies of money required either much labour or much ſagacity. This firſt money was either ſimply caſt in moulds, or, at moſt, ſtruck with the hammer. It may be compared to that of Japan and ſeveral eaſtern nations. This is a kind of ingots of gold or ſilver, very coarſely formed. They ſtrike a mark upon them with the hammer, expreſſing their ſtandard, and their weight [p]. The fabrication of ſuch pieces of money, required neither much care nor much ſkill. I imagine, likewiſe, that originally theſe pieces of money were current only in the country where they were ſtruck. When they were given in payment in other countries, it was the cuſtom to weigh them. What inclines me to this opinion, is, that when Joſeph's brethren, at their return into Egypt, brought back the money which that patriarch had cauſed to be put into their ſacks, they ſay, that they had found it in full weight, and had brought it back the ſame [q].

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[n] See le comm. du P. Calmet, t. 1. p. 669.; Mem. de Trev. Mai 1734, p. 780; Diſſertat. du P. Souciet, ſur les médailles Hébraiques, p. 67. & 114.

There was formerly in France golden deniers with a lamb, and both ſmaller and greater ones with a ſheep upon them.

[o] The ancient money both of the Greeks and Romans, bore the impreſſion of an ox. See part 2. b. 4. ch. 4. See alſo Plin. l. 33. ſect. 13. p. 610.; Plut. t. 2. p. 274. F.

[p] See Chardin, t. 4. p. 279. 280.; Tavernier, t. 4. p. 337.; Hiſt. gen. des voyag. t. 10. planche 1. n. 6. planche 4. n. 9. planche 6. n. 12.; Bianchini, iſt. univ. p. 522.; Tab. B. N. 18. *ad* cap. 31.

[q] Gen. c. 43. v. 21.

However that may be, it is certain, that, in the days of Jacob, commerce was carried on between different countries, and in many kinds of merchandiſe. The Iſhmaelites and Midianites, to whom Joſeph was ſold by his brethren, came from the country of Gilead, and went into Egypt to ſell their goods [r], which conſiſted of ſpiceries, and ſeveral other precious things [s]. This ſuppoſes a regular trade, and of ſome ſtanding, as theſe kinds of merchandiſe adminiſter rather to luxury than mere neceſſity. The purchaſe which theſe merchants made of Joſeph to ſell him again in Egypt, ſhews alſo, that even then there was a trade in ſlaves in ſeveral countries [t].

We ſee likewiſe, that, in very remote ages, there was a great trade in corn carried on in Egypt. In times of ſcarcity, that kingdom was the reſource of all the neighbouring countries. During the ſeven years of famine which afflicted Paleſtine and the adjacent ſtates, Egypt, by the care of Joſeph, was in a condition to furniſh corn to all the ſtrangers who came there to buy it [u]. Correſpondence was, even then, ſo well regulated, that it was not long before Jacob was informed of this, though he lived at a conſiderable diſtance from Egypt [x].

As to the manner in which trade was carried on in theſe primitive times, we muſt make a diſtinction between land and ſea trade.

Land-trade without doubt was firſt. Yet it muſt have been a conſiderable time before even this could be carried on with caſe and ſafety. The art of breaking animals, and of uſing them commodiouſly for carriage, muſt firſt have been invented. Then highways muſt have been made, and thoſe obſtacles which nature has oppoſed to the free communication between different countries, removed or overcome. Semiramis, ſay hiſtorians, applied herſelf to render the roads practicable through the whole extent of her empire [y]. This is the firſt attempt of that kind taken notice of in hiſtory. Yet as there were ſeveral princeſſes of that name, I cannot confidently aſcribe theſe magnificent works mentioned by ſeveral writers, to the moſt ancient Semiramis, the Queen of Ninus [z].

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[r] Gen. c. 37. v. 25.

[s] Ibid.

[t] Ibid. v. 36.

[u] Ibid. c. 42. v. 1. & 5.

[x] Ibid.

[y] Diod. l. 2. p. 126. 127.; Strabo, l. 16. p. 1071.; Polyæn. ſtrat. l. 8. c. 26.

If we believe ſeveral ancient authors, we muſt place in this period which we are now upon, the invention of the art of building bridges, an art ſo neceſſary to commerce. Herodotus ſays, that Menes, one of the firſt kings of Egypt, built a bridge over one of the branches of the Nile [a]. Diodorus aſcribes the conſtruction of that magnificent bridge over the Euphrates at Babylon to the ancient Semiramis [b]. I ſhall not now inſiſt on the truth of theſe facts. I have already obſerved how far I think they may be depended upon.

The invention of carriages proper for tranſporting goods of a certain weight, might alſo be ranked among thoſe arts which muſt have preceded the eſtabliſhment of commerce by land. But I do not find that the ancients made much uſe of theſe kind of machines in tranſporting merchandiſe. There is no mention of them in ancient authors; and it is certain, that to this day they are not uſed in the Levant; though it was in theſe countries that commerce had its birth.

It appears, that in theſe places, from the remoteſt ages, they made uſe of beaſts of burden for the tranſporting of goods. In long journeys they employed camels. The Iſhmaelites and Midianites, to whom Joſeph was ſold, rode on camels [c]. That hiſtory, in my opinion, preſents us with a ſtriking image of the manner in which commerce by land is carried on in the Levant at this day. Several merchants join together, and form what they call a *caravan*. The ſcripture ſeems to me to repreſent theſe Iſhmaelites and Midianites who bought Joſeph, as forming ſuch a caravan. The book of Job alſo may ſerve to ſhew us the great antiquity of this cuſtom. It mentions the troops of Tema and of Sheba [d], that is, caravans which ſet out from theſe two cities of Arabia.

We ſee alſo beaſts of burden employed in the journey the ſons of Jacob made into Egypt to buy corn. They performed that journey by land, and Moſes tells us they made uſe of aſſes for carriage [e]. It is well known that in warm countries, theſe kind of animals are almoſt as much valued as horſes or mules. They are infinitely ſuperior to thoſe in our climate.

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[z] See *ſupra*, b. 2. chap. 5. p. 168.

[a] L. 2. n 99.

[b] L. 2. p. 121.

[c] Gen. c. 37. v. 25.

[d] Job, c. 6. v. 19. See le P. Calmet, *loco cit.*

One of the greateſt obſtacles which thoſe who carried on commerce by land muſt have had to ſtruggle with, was the difficulty of finding ſubſiſtence and lodging by the way. Theſe firſt travellers muſt have carried proviſions with them for themſelves and their beaſts. When they had a mind to take refreſhment, they probably placed themſelves in the day-time under the ſhade of ſome tree, and in the night retired to ſome cave. Afterwards tents came into uſe; every one carried his own tent with him, and pitched it in the moſt commodious and agreeable ſpot he found on the road. We find ſeveral examples of this practice in the hiſtory of Abraham in ſcripture. This patriarch always travelled with his tent [f]. This cuſtom ſubſiſts to this day in the eaſt.

As commerce increaſed, and theſe journeys became more frequent, they would perceive how dangerous and diſagreeable it was to have no fixed and ſecure place by the way to repoſe in. The deſire of gain would ſuggeſt to ſome people the thought of offering the uſe of their houſes to travellers for payment. It was thus inns were by degrees eſtabliſhed in ſeveral places. Herodotus aſcribes this invention to the Lydians, but he does not fix the time of it [g]. Probably however it was very ancient. The Lydian monarchy may be reckoned among thoſe which were formed in the moſt remote antiquity *. Beſides, we may obſerve, that, in the days of

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[e] Chap. 42. v. 26. See alſo c. 45. v. 21. & 23.

[f] Chap. 12. v. 8. c. 13. v. 18. [g] L. 1. n. 94.

* Their firſt King whoſe name was *Menes*, was, ſay they, the ſon of Jupiter, and of the Earth. The meaning of this expreſſion is well known. It was Lydus, one of his ſucceſſors, ſay hiſtorians, who gave the name of Lydia to the country. See Herod. l. 1. n. 7. l. 4. n. 45. l. 7. n. 74.; Dionyſ. Halicarn. l. 1. p. 21.

But it ſeems more probable to me that this country derived its name from Lud, the ſon of Japhet. This is the opinion of Joſephus, St Jerome, and ſeveral other authors both ancient and modern. See Bochart, Phaleg. l. 4. c. 26. & le P. Calmet, t. 1. p. 300.

Jacob [h], inns were eſtabliſhed in ſome places, though the ancient cuſtom of carrying proviſions for themſelves and their beaſts ſtill continued [i].

We may comprehend under the name of land-trade, that which was carried on by rivers and canals. The one muſt have been nearly as ancient as the other. The firſt cities were probably built on the banks of rivers. Their inhabitants needed proviſions to be brought them. They would ſoon diſcover, that the rivers might be of great ſervice for that purpoſe. Neceſſity would ſuggeſt the methods of making uſe of them for that end, and probably it was not long before ſuch methods were diſcovered. Men muſt very ſoon have obſerved, on a thouſand occaſions, pieces of wood floating down rivers. After this obſervation, it was an eaſy and natural thought, to collect a number of ſuch pieces of wood, to tie them together, and form a float of them. After they had found that this aſſemblage of pieces of wood kept above water, it would be as eaſy to diſcover that it would carry a ſmaller or greater weight in proportion to its ſize. Experience would ſoon teach them how to guide theſe kind of water-carriages, the only ones which were known in the firſt ages [k].

Theſe floats or rafts were probably ſucceeded by canoes, ſuch as the ſavages uſe at preſent [l]. Theſe are trunks of trees made hollow by means of fire. This ſecond kind of veſſels were both more commodious and more ſecure than floats. The goods in them were not ſo much expoſed to be ſpoiled or carried away by the water. In ancient times theſe canoes made of a ſingle tree, were much uſed [m]. They were known by the name of *Monoxyles* [n]. Sanchoniatho ſays, that Ouſoüs, one of the moſt ancient heroes of Phœnicia, took a tree which was half-burnt, cut off its branches, and was the firſt who had the courage to expoſe himſelf upon the waters [o].

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[h] Gen. c. 42. v. 27. See alſo Exod. c. 4. v. 24.

[i] Gen. c. 45. v. 21. & 23. c. 42. v 27.

[k] See Conon. narrat. 21. apud Phot. p. 433.; Plin. l. 7. ſect. 57. p. 417. l. 12. ſect. 42. p. 668.; Agatarchid. apud Phot. p. 1324.; Iſidor. orig. l 19. c. 1.

[l] Rec. des voyag. au Nord, t. 9. p. 272.; Hiſt. de la Virginie, l. 3. c. 13. p. 315.; Voyage de Damp. t. 1. p. 93.

[m] See Virgil. georg. l. 1. v. 136.; Hiſt. de la Chine, t. 1. p. 42.

[n] See Plato de leg. l. 12. p. 995.; Plin. l. 6. ſect. 26. p. 328.

Every country does not afford a ſufficient number of trees, of a proper ſize for forming theſe canoes. It was neceſſary, therefore, to find out the art of imitating theſe natural veſſels, by conſtructing artificial ones, of ſeveral pieces of wood joined together, of a proper ſolidity and capacity. Several ancient nations uſed a kind of boats, formed of ſlender rods, joined together in the manner of hurdles, and covered with ſkins [p]. Theſe kind of boats are ſtill uſed on the Red ſea [q]. The barks of the people of Iceland are made of long poles placed croſs-wiſe, and tied together with thongs of whales whiſkers. They are covered with the ſkins of ſea-dogs, ſewed with ſinews inſtead of thread [r]. The canoes of the ſavages in America are made of the barks of trees. I am perſuaded, however, that it was not very long before they diſcovered the art of conſtructing veſſels of ſeveral planks joined together, either with cords or wooden pins. Several nations ſtill preſent us with models of veſſels conſtructed in both theſe ways [ſ].

Straight poles and oars were ſufficient to conduct theſe kinds of veſſels. In this manner, men in the remoteſt ages might navigate their rivers, and tranſport their merchandiſes from one country to another.

Experience having more and more encouraged them, they would at laſt venture to expoſe themſelves upon the open ſea. Let us examine in what manner, and by what degrees mankind might learn to conduct themſelves on that terrible element. It is to the invention of this art that commerce owes its greateſt improvements, and there is no invention of which mankind have ſo much reaſon to boaſt. We may even ſay of navigation, that it ſeems to ſurpaſs the limits of the human underſtanding, and to be beyond the utmoſt reach of our ſagacity.

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[o] *Apud* Euſeb. præp. evang. l. 1. p. 35. A.

[p] Cæſ. de bell. civ. l. 1. n. 51.; Plin. l. 7. ſect. 57. p. 417.; Strabo, l. 3. p. 234. l. 16. p. 1124. See Scheff. de milit. nav. l. 1. c. 3. p. 26.

[q] Pietro d'ella Valle, t. 1. p. 269.

[r] Hiſt. nat. de l'Iſlande, t. 2. p. 208. & 210.

[ſ] Lettr. édif. t. 18. p. 195.

C H A P. II.

Of Navigation.

SEveral conjectures preſent themſelves concerning the origin of navigation. Various accidents and events might have given birth to that art. The ſea-coaſts in many places are full of iſlands, at no great diſtance from the continent. Curioſity would naturally inſpire men with an inclination to paſs over into theſe iſlands. As this paſſage would not appear either very long, or very dangerous, they would attempt it. Succeſs in one of theſe attempts would encourage to a ſecond. Pliny relates, that anciently they ſailed only among iſlands, and that on rafts [t].

Fiſhing, to which ſeveral nations applied themſelves in the earlieſt ages, might alſo contribute to the origin of navigation. I am, however, moſt inclined to think, that the firſt ideas of this art were owing to thoſe nations which were ſeated near the mouths of rivers, where they fell into the ſea. As they ſailed upon theſe rivers, they would ſometimes be carried out to ſea, either by the current, by a ſtorm, or even by deſign. They would be terrified at firſt at the violence of the waves, and the dangers with which they threatened them. But when they had got over theſe firſt terrors, they would ſoon be ſenſible of the great advantages which the ſea might procure them, and, of conſequence, would endeavour to find out the means of ſailing upon it.

In whatever way mankind became familiar with that terrible element, it is certain, that the firſt eſſays in navigation were made in the moſt ancient times. Moſes informs us, that the grandſons of Japhet paſſed over into the iſlands near the continent, and took poſſeſſion of them [u]. It is alſo an undoubted fact, that colonies very ſoon ſailed from Egypt into Greece [x].

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[t] L. 7. ſect. 57. p. 417.

[u] Gen. c. 10. v. 5.

[x] See *ſupra*, b. I. art. 5. p. 64.

Sanchoniatho aſcribes the invention of the art of building ſhips, and the glory of undertaking ſea-voyages, to the Caberites [y]. The ancient traditions of the Phœnicians make the Caberites cotemporary with the Titans [z].

I have deſcribed in the preceding chapter, what was probably the firſt form and conſtruction of the veſſels uſed in the navigation of lakes and rivers. Such alſo would be the form of the firſt ſhips. But experience would ſoon convince them, that ſhips deſigned for navigating the ſeas ought to be of a different conſtruction from thoſe intended for rivers. They would make it their ſtudy, therefore, to give ſuch a form and ſolidity to ſhips deſigned for the ſea, as would enable them to reſiſt the impetuoſity of its waves. They would next endeavour to find out a method of guiding and directing them with eaſe and ſafety. Sculls and oars were the only inſtruments that occurred to them for ſome time. It muſt have been long before they thought of adding the helm. The ancients imagined, that it was the fins of fiſhes which firſt ſuggeſted the idea of oars, and that the hint of the helm was taken from obſerving how birds direct their flight by their tails [a]. The ſhape of ſhips, excepting the ſails, ſeems to me to be copied from that of fiſhes. What the fins and tail are to fiſhes, that the oars and helm are to ſhips. But theſe are only conjectures more or leſs probable, and not worth examining to the bottom.

The action of the wind, whoſe effects are ſo ſenſible and ſo frequent, might ſoon ſuggeſt the uſe of ſails. But the manner of adjuſting and managing them was more difficult, and would not be ſo ſoon diſcovered. This, I am perſuaded, was the very laſt part of the conſtruction of ſhips which was found out. I am confirmed in this opinion, by the practice of the ſavages and other rude nations, who make uſe only of oars, but have no ſails. It would be the ſame in the firſt ages. The firſt navigators only coaſted, and cautiouſly avoided loſing ſight of land. In ſuch circumſtances, ſails would have been more dangerous than uſeful. It required the experience of ſeveral ages to teach navigators the art of employing the wind in the direction of ſhips.

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[y] *Apud* Euſeb. præpar. evang. l. 1. p. 36. A.

[z] Ibid.

[a] Plin. l. 10. ſect. 12. p. 551.

If we believe, however, the ancient traditions of the Egyptians, this art of uſing the wind by means of maſts and ſails, was exceeding ancient. They give the honour of this diſcovery to Iſis[b]. But over and above the little credit which is due to the greateſt part of the hiſtory of that princeſs, we ſhall ſee by and by, that this diſcovery cannot be aſcribed to the Egyptians.

Men muſt ſoon have endeavoured to find out ſome method of ſtopping ſhips at ſea, and keeping them firm at their moorings. They would at firſt make uſe of various expedients for this purpoſe, ſuch as large ſtones, hampers or ſacks full of ſand or other heavy bodies[c]. Theſe they fixed to ropes, and threw into the ſea. Theſe methods would be ſufficient in the firſt ages, when the veſſels they uſed were only ſmall and light barks. But as navigation improved, and larger ſhips were built, ſome other machine became neceſſary. We know not at what time, or by whom the anchor, that machine at once ſo ſimple and ſo admirable, was invented. We find nothing certain on this ſubject in ancient authors[d]. Only they agree in placing this diſcovery in ages greatly poſterior to thoſe we are now examining. They aſcribe this invention to ſeveral different perſons. I imagine, the anchor, like ſeveral other machines, might be found out in many different countries, much about the ſame time. It is certain, that the firſt anchors were not made of iron, but of ſtone[e], or even of wood[f]. Theſe laſt were loaded with lead. We are told this by ſeveral writers, and amongſt others by Diodorus. This author relates, that the Phœnicians, in their firſt voyages into Spain, having amaſſed more ſilver than their ſhips could contain, took the lead from their anchors, and put ſilver in its place[g]. We may obſerve further, that the firſt anchors had only one flook. It was not till many ages after, that Anacharſis invented one with two[h].

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[b] Hygin. fab. 277.; Caſſiod. var. l. 5. ep. 17.

[c] Appollon. Argonaut. l. 1. v. 955.; Plin. l. 36. ſect. 23. p. 741. See le Treſor d'H. Etienne, *au mot* Λίθος.

[d] See Plin. l. 7. ſect. 57. p. 418.; Pauſ. l. 1. c. 14.

[e] Stephan. Byſant. *voce* 'Αγκυρῶν, p. 15.

[f] Arrian. Peripl. pont. Eux. p. 121.

All theſe different kinds of anchors are ſtill in uſe in ſome countries. The inhabitants of Iceland[i], and of Bander-Congo[k], uſe a large ſtone with a hole in the middle, and a ſtick thruſt through it. In China, Japan, Siam, and the Manillas, they have only wooden anchors to which they tie great ſtones[l]. In the kingdom of Calicut they are of ſtone[m]. The ignorance of the firſt ages, and of many nations to this day, of the art of working iron, has been the occaſion of all theſe rude and clumſy contrivances.

Though the firſt navigators coaſted along the ſhores, and took all poſſible pains not to loſe ſight of land, yet, in the very firſt ages, they muſt frequently have been driven off to ſea by ſtorms. The confuſion and uncertainty they found themſelves in when theſe accidents happened, would put them upon ſtudying ſome method of finding where they were in theſe circumſtances. They would ſoon be ſenſible, that the inſpection of the heavenly bodies was the only thing that could afford them any direction. It was in this manner, probably, that aſtronomy came to be applied to navigation.

From the firſt moment men began to obſerve the motion of the heavenly bodies, they would take notice, that in that part of the heavens where the ſun never paſſes, there are certain ſtars which appear conſtantly every night. It was eaſy to diſcover the poſition of theſe ſtars in reſpect of our earth. They appear always on the left hand of the obſervator whoſe face is turned to the eaſt. Navigators were ſoon ſenſible that this diſcovery might be of great advantage to them, as theſe ſtars conſtantly pointed out the ſame part of the world. When they happened to be driven from their courſe, they found, that, in order to recover it, they had only to direct their ſhip in ſuch a manner, as to bring her into her former poſition, with reſpect to thoſe ſtars which they ſaw regularly every night.

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[g] L. 5. p. 358. [h] Strabo, l. 7. p. 464.; Plin. l. 7. ſect. 57. p. 418.

[i] Hiſt. nat. de l'Iſlande, t. 1. p. 263.

[k] Gemelli, Giro del' mondo, t. 2. p. 294.

[l] Lettr. édif. t. 14. p. 12.; Voyage des Holland. t. 2. p. 77. & 83; Hiſt. gen. des voyag. t. 8. p. 308.; Schouten, t. 1. p. 84.

[m] Scheffer. de milit. nav. l. 2. c. 5. p. 148.

Antiquity gives the honour of this diſcovery to the Phœnicians [n], a people equally induſtrious and enterpriſing. The Great Bear would probably be the firſt guide which theſe ancient navigators made choice of. This conſtellation is eaſily diſtinguiſhed, both by the brightneſs and peculiar arrangement of the ſtars which compoſe it. Being near the pole, it hardly ever ſets, with reſpect to thoſe places which the Phœnicians frequented. We know not in what age navigators firſt began to obſerve the northern ſtars, for the direction of their courſe. But it muſt have been in very ancient times. The Great Bear is mentioned in the book of Job [o], who ſeems to have converſed much with merchants and navigators [p]. The name by which that conſtellation was known among the ancient inhabitants of Greece, and the tales which they related about its origin, prove that it was obſerved for the direction of navigators in very remote ages [q].

But the obſervation of the ſtars in the Great Bear was a very imperfect and uncertain rule for the direction of a ſhip's courſe. The truth is, this conſtellation points out the pole only in a very vague and confuſed manner. Its head is not ſufficiently near it, and its extremities are more than forty degrees diſtant from it. This vaſt extent occaſions very different aſpects, both at different hours of the night in the ſame ſeaſon of the year, and in the ſame hour in different ſeaſons. This variation would be conſiderably increaſed, when it came to be referred to the horizon, to which the courſe of navigators muſt neceſſarily be referred. They muſt have made an allowance for this variation by gueſs; which could not but occaſion great miſtakes and errors, in thoſe ages, when they were guided only by practice inſtead of geometrical rules and tables, which were not invented till many ages after.

[n] See infra, p.

[o] See our diſſertation on the conſtellations mentioned in the book of Job.

[p] See ſupra, b. 3. c. 2. p. 241.

[q] See Bianchini, iſtor. univ. p. 295.; Spectacle de la nature, t. 4. p. 317. &c.

It muſt have been long before navigation arrived at any tolerable degree of perfection. There is no art or profeſſion which requires ſo much thought and knowledge. The art of ſailing is of all others the moſt complicated, its moſt common operations depend upon various branches in different ſciences. It appears however, that, even in the ages we are now examining, ſome nations had made ſome progreſs in maritime affairs. Theſe diſcoveries can be aſcribed to nothing, but that love to commerce with which theſe nations were animated, and their great ardor for the advancement of it.

ARTICLE I.

Of the Phœnicians.

THoſe of the deſcendents of Noah who ſettled on the coaſts of Paleſtine, were unqueſtionably the firſt who found out the art of making navigation ſubſervient to commerce. Theſe people are known in ſcripture by the name of Canaanites [r], a word which in the language of the eaſt ſignifies *merchants* [ſ]. They are the ſame who were afterwards called Phœnicians by the Greeks [t]. Sidon, which was originally their capital city [u], was founded by Sidon the eldeſt ſon of Canaan [x]. For a long time it enjoyed the ſovereignty of the Mediterranean [y]. It is eaſy to ſatisfy ourſelves of this, by reading the moſt ancient writers. Homer, as Strabo obſerves, ſpeaks only of Sidon [z], and plainly enough intimates that its inhabitants carried on the greateſt trade. This city was afterwards eclipſed by its own colony Tyre [a]. But this was many ages later than the times we are now examining.

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[r] Num. c. 13. v. 30.

[ſ] See Braun. de veſtitu ſacerdot. Hebr. p. 251.; L'hiſt. univerſ. t. 1. p. 219.

[t] Ibid. p. 576. t. 2. p. 53. & 61.; Marſh. p. 290.; Calm. t. 1. p. 272. t. 3. p. 131.; Mem. de Trev. Juill. 1704, p. 1184. Juin 1705, p. 1039.

[u] Marſh. p. 290.; Hiſt. univ. t. 2. p. 54. & 74.; Bochart, Phaleg. l. 4. c. 37.

[x] Gen. c. 10. v. 15. & 19.; Joſ. antiq. l. 1. c. 6.

[y] P. Mela, l. 1. c. 12.; Strabo, l. 16. p. 1097.

[z] L. 16. p. 1097.

[a] Iſaiah, c. 23. v. 12.; Juſtin. l. 18. c. 3.

The Phœnicians, ſo I ſhall henceforth call them, inhabited a very barren and ungrateful ſoil: but their own induſtry procured them thoſe bleſſings which nature ſeemed to have refuſed them. They applied themſelves to the cultivation of the arts, and made a very great and rapid progreſs in them. The Phœnicians ſeem to have peculiarly excelled in manufactures and works of taſte *. In conſequence of this, commerce was the great object of their attention. They have been always eſteemed the inventors of this art, and the inſtructors of other nations in the practice of it [b]. They have been honoured alſo by all antiquity, as the inventors of weights and meaſures [c], of arithmetic [d], and of writing [e]. In a word, the ancients believed it was the Phœnicians who found out the art of caſting accounts [f], keeping regiſters, and every thing that belongs to a factory.

With ſo ſtrong a turn towards commerce, this people ſoon perceived, that they might derive unſpeakable advantages from the ſea. Accordingly they are accounted by all antiquity, the inventors of navigation [g]. Nature had formed ſeveral very ſafe and commodious harbours upon their coaſts. Being in the neighbourhood of Libanus, and ſeveral other mountains, they could eaſily procure from thence wood proper for the conſtruction of ſhips. The Phœnicians knew how to make the moſt of all theſe advantages. Succeſs having crowned their firſt enterpriſes, in a few ages they eſtabliſhed a moſt extenſive and flouriſhing trade all over the Mediterranean [h].

It appears, that, in the days of Abraham, the Phœnicians were conſidered as a very powerful people [i]. It is certain alſo, that,

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* See Bochart, in Phaleg. l. 4. c. 35. p. 343.

Sidon was famous for making linen, tapeſtry, and fine veils, for working metals and wood, and the invention of glaſs, &c.

Tyre was celebrated for the art of dying, particularly purple, for working ivory, &c.

[b] Dionyſ. Perieget. v. 908.; See alſo Huet, hiſt. du commerce, p. 65.

[c] Polydor. Virgil. l. 1. c. 19.

[d] See ſupra, b. 3. c. 2. art. 1. p. 212.

[e] Supra, b. 2. c. 6. p. 182.

[f] Strabo, l. 16. p. 1098. l. 17. p. 1136.; Dionyſ. Perieget. v. 908.

[g] Dionyſ. Perieget. v. 907.; Tibull. l. 1. eleg. 7. v. 20.

[h] Sanchoniat. *apud* Euſeb. præpar. ev. l. 1. p. 37. B.; Diod l. 5. p. 345.

[i] Gen. c. 12. v. 6.

in theſe times they ſailed to the coaſts of Greece. They were reproached for having carried off from thence Io, the daughter of Inachus [k]. This prince reigned about the time of the birth of Iſaac. We find likewiſe that mention is made of the ſea-trade of this people, in the laſt words of Jacob to his children [l]. It is unqueſtionable, therefore, that the Phœnicians carried on a very extenſive trade in the firſt ages after the deluge. This is all we know of theſe times. For the manner in which they carried on their trade, the commodities in which they chiefly dealt, and, in a word, all the particulars, are quite unknown to us. We have even but very imperfect notions of the countries to which the Phœnicians ſailed in theſe firſt ages. For which reaſon, it would be uſeleſs to inſiſt any longer on this article.

Neither are we better informed about the manner in which that people navigated their ſhips. We know not what were their firſt diſcoveries, nor what their ſucceſſive improvements in maritime affairs. There remains not the leaſt veſtige of any of theſe things in antiquity. Ancient writers on theſe ſubjects expreſs themſelves only in vague and general terms. They only inform us, as I ſaid already, that the Phœnicians were very ſoon ſenſible, that the obſervation of the heavenly bodies might be of great ſervice to them in directing the courſe of their ſhips [m]. I ſhall treat this matter more minutely in the ſecond part of this work. I ſhall there enter into a diſquiſition concerning the conſtruction and form of their ſhips.

ARTICLE II.

Of the Egyptians.

WE muſt not rank the Egyptians among thoſe nations who made early diſcoveries in navigation. Their way of

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[k] Herod. l. 1. n. 1.

[l] Gen. c. 49. v. 13.; See alſo Judg. c. 5. v. 17.

[m] Dionyſ. Perieg. v. 909.; Strabo, l. 16. p. 1098.; Plin. l. 5. ſect. 13. p. 259. l. 7. ſect. 57. p. 418.; P. Mela, l. 1. c. 12.; Propert. l. 2. eleg. 27.

thinking in ancient times, was quite inconſiſtent with maritime enterpriſes. They entertained an extreme averſion to the ſea, and regarded thoſe as impious who dared to imbark upon it [*]. Superſtition inſpired them with theſe ſentiments. In their ancient theology, the ſea was the emblem of Typhon, the ſworn enemy of Oſiris. Hence that abhorrence which the Egyptian prieſts ſtill retained of the ſea, and every thing it produced, to ſuch a degree, that they would neither uſe ſalt, nor eat fiſh [n]. They avoided alſo all intercourſe with mariners; a maxim which they ſtill adhered to, even after the reſt of the nation had begun to frequent the ſea [o].

There were other cauſes which muſt have reſtrained the ancient inhabitants of Egypt from applying themſelves to navigation. This country produces no wood proper for the conſtruction of ſhips [p]. Beſides, its ſea-coaſts are very unhealthy, and have few good harbours [q]. Laſt of all, the policy of the firſt ſovereigns of Egypt was deſtructive of all commerce by ſea. They excluded all ſtrangers from their harbours [r]. Naucratis was the only place where they were permitted to put in. That city had a communication with the ſea by the Canopean mouth of the Nile. If a ſhip entered any of the other mouths of that river, the whole crew were firſt obliged to ſwear, that they had been driven in againſt their will. After this ceremony, they made them bring about the ſhip to the Canopean mouth of the river. If the winds oppoſed this, they unloaded the cargo into ſmall barks, which coaſted along the Delta, till they arrived at Naucratis [ſ]. They uſe the ſame precautions at preſent in Japan [t].

We may be aſſured, that in general the Egyptians did not addict themſelves to commerce. The men diſdained to meddle with it, but left it entirely to the women [u]. Beſides, it was a maxim among that people, never to leave their own country [x]. They thought in this particular, as the Chineſe [y], did formerly, and as the Japaneſe [z] do at preſent. The Egyptians waited till other nations brought them the things they ſtood in need of [a]; and they did this with the more tranquillity, as the great fertility of their country in theſe times left them few things to wiſh for. It is not at all ſurpriſing, that a people of ſuch principles did not apply to navigation till very late.

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[*] The Perſians think in the ſame manner; they have no ſea-trade, and account all atheiſts who frequent the ſea.

[n] Plut. t. 2. p. 363.; Herod. l. 2. n. 37.

[o] Plut. *loco cit.*

It was perhaps the Egyptians which Homer meant, when he ſpeaks of a nation who knew nothing of navigation, and made no uſe of ſalt. Odyſſ. l. 11. v. 121. &c.

[p] Plin. l. 16. ſect. 76. p. 35.; Voyage d'Egypte par Granger, p. 12. & 19.

[q] Diod. l. 1. p. 36.; Strabo, l. 17. p. 1174.

[r] Diod. l. 1. p. 78.; Strabo, l. 17. p. 1142.

[ſ] Herod. l. 2. n. 179.

[t] Kœmpfer, hiſt. du Japon, t. 2. p. 78.

It appears indeed, that ſome colonies went from Egypt into Greece in ancient times [b]. But a ſmall number of individuals do not form an exception to the general character of a nation. Beſides, we may preſume, that the leaders of theſe colonies were adventurers, who either diſcontented with, or baniſhed from their country, ſhipped themſelves on board Phœnician veſſels [c]. This they might eaſily do; for the Phœnicians [d] carried on a regular trade with Egypt from the remoteſt ages. Finally, it was not trade or navigation theſe colonies had in their view; and therefore we can draw no concluſion from thence in ſupport of ſea-trade, which ſeems to me to have been much neglected by the ancient Egyptians [e].

We cannot affirm the ſame of the other nations who inhabited the coaſts of Africa, which are waſhed by the Mediterranean. It appears from ſeveral paſſages of ancient hiſtory, that theſe nations applied themſelves very early to navigation. Atlas King of Mauritania was repreſented by ſeveral ancient writers, as the inventor of the art of ſhip-building [f]. The worſhip of Neptune had been brought from Lybia into Greece [g]. It does not appear however, that the people of theſe countries had either a very famous or very extenſive ſea-trade: at leaſt, there are no veſtiges of this to be found in the writings of the ancients.

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[u] Herod. l. 2. n. 35.
[x] Clem. Alex. ſtrom. l. 1. p. 354.
[y] Kœmpfer. hiſt. du Japon, t. 2. p. 231.
[z] Ibid. p. 176.
[a] Strabo, l. 17. p. 1142.; Lucan. Pharſal. l. 8. v. 446.
[b] *Supra*, b. 1. art. 5. p. 65. & 66.
[c] See Marſh, p. 109. & 110.
[d] Herod. l. 1. n. 1. See part. 2. b. 4. c. 2.
[e] See Herod. l. 2. n. 50.
[f] Clem. Alex. ſtrom. l. 1. p. 362.
[g] Herod. l. 2. n. 50.

We have more information left us concerning the ſea-trade of thoſe nations of Aſia which were ſettled on the coaſts of the Red ſea. It is certain that they applied themſelves to it, in the earlieſt ages. We have evidences of this, both in ſacred and profane writers. Theſe laſt are almoſt unanimous in conſidering Erythras as the inventor of navigation. They fix the place of his reſidence towards the eaſtern parts of the Red ſea [h]. This country, as I imagine, is the ſame which the ſcripture calls Idumea. It had been originally inhabited by a people named Horites or Horeans [i]. In theſe firſt ages it was called the land of Seir [k]. The Horites were then under the government of ſeveral chiefs [l]. The ſettlement of this people muſt have been very ancient, ſince they are named among the nations which Chedorlaomer conquered in the days of Abraham, before the birth of Iſaac [m]. After the death of this patriarch, his ſon Eſau went and dwelt in the land of Seir [n]. At firſt, I imagine, he lived there as a private perſon [o]; but, in the ſequel, his poſterity having defeated and deſtroyed the Horites [p], made themſelves maſters of the country [q]. It was undoubtedly in conſequence of this event, that the land of Seir changed its name, and was called Edom or Idumea from the name of Eſau [r].

It ſeems evident, that the Horites applied themſelves to navigation in the very firſt ages. It was by this means they came to carry on a very great commerce. We ſee that in the days of Job, who I believe was cotemporary with Jacob [ſ], their trade chiefly conſiſted in gold, precious ſtones, coral, pearls, and other merchandiſe of great value [t]. A trade of this kind, which adminiſtered only to luxury, proves the great antiquity of commerce and navigation among that people. In general, from the manner in which Job ſpeaks of ſhips [u], of whale-fiſhing [x], and of the conſtellations [y], we may conclude, that he lived among a people who made navigation their chief employment [z]. I have proved, as I think, that Idumea was the country of Job [a].

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[h] Agatarchid. apud Phot. p. 1324.; Strabo, l. 16. p. 1125.; Plin. l. 7. ſect. 57. p. 417.; P. Mela, l. 3. c. 8.

[i] Gen. c. 36. v. 20. & 22.

[k] Ibid. v. 30.

[l] Ibid. v. 21. 29. 30.

[m] Ibid. c. 14. v. 6.

[n] Ibid. c. 36. v. 8.

[o] See hiſt. univ. t. 1. p. 556.

[p] Deut. c. 2. v. 12.

[q] See hiſt. univ. t. 1. p. 557. & 559.

[r] Gen. c. 25. v. 30. c. 36. v. 1.

[ſ] See our diſſertation.

[t] Job, c. 28. v. 16. & 19.

With regard to the nations of the Higher Aſia, I can ſay nothing about their progreſs in navigation, or the ſtate of commerce among them in theſe remote times. What Diodorus ſays of the fleet which Semiramis built on the river Indus, is mixed with too many fables to merit any credit. The little we can gather from it is, that the people of theſe countries had then but ſmall ſkill in maritime affairs. For, in effect, Diodorus ſays, that Semiramis brought from Phœnicia and Syria, the workmen who built the ſhips which ſhe uſed in attacking the King of India [b].

It would likewiſe be difficult to ſay any thing at preſent of the ſtate of navigation and commerce among the European nations. The hiſtory of this part of the world, in the ages we are now examining, is ſo little known, that it is impoſſible to give any account of theſe matters, or ſo much as to form conjectures about them.

From the ſeveral facts which have been now enumerated, we may draw this concluſion, That navigation had made ſome progreſs in the ages which are the ſubject of this firſt part of our work: That this progreſs muſt be aſcribed to that ardor with which ſome nations applied to commerce; for nothing but that could ever have formed men to the ſeafaring life. I might add, that the degree of perfection to which the arts had then arrived in ſome countries [c], would alone be ſufficient to eſtabliſh the truth of theſe propoſitions. The arts are the fruits of luxury, luxury is the effect of riches; but the great ſource of riches is commerce, and without navigation there can be no regular flouriſhing commerce.

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[u] Job, c. 9. v. 26.

[x] Chap. 40. v. 25. 26.

[y] See our diſſertation on the conſtellations ſpoke of in the book of Job.

[z] See Newton, chronol. of Egypt, p. 229.

[a] See our diſſertation on Job.

[b] B. 2. p. 130.

[c] See *ſupra*, b. 2. c. 5.

I ſhall ſay nothing at preſent of ſea-fights. We have no evidence that there were any in the ages we are now examining. A conſiderable time muſt have elapſed before men could have acquired ſufficient ſkill and courage to engage in battles at ſea. I do not imagine, that, in theſe ages, there were any ſhips of war, much leſs naval armies. The moſt that we can ſuppoſe, is, that there might be ſome pirates, that is to ſay, ſome navigators, who truſting to the largeneſs of their ſhips, and number of their crews, might fall upon ſmaller veſſels which were incapable of making any reſiſtance.

I imagine too, that the practice of making deſcents upon the coaſts, and plundering their inhabitants, might prevail even in theſe ages. The ancient navigators, it is probable, would not neglect this method of enriching themſelves. This was the eaſier, as the art of fortifying cities was then unknown. Beſides, I ſhall have occaſion to ſhew in the ſecond part of this work, how much the deſire of plunder and booty muſt have contributed originally to the improvement of navigation.

BOOK V.

Of the Art Military.

THE ſpirit of diſcord has prevailed in all ages on this earth. There were quarrels and fightings as ſoon as there were men. It is needleſs to endeavour to diſcover the origin of their firſt diſputes. They could ſpring from nothing but envy, that great ſource of all animoſities. In the firſt ages, men would fight like wild beaſts about their food, their females, the poſſeſſion of a cave, the hollow of a rock, or of a tree. They would uſe no other arms but thoſe which nature furniſhed. Fury would be their only guide, the gratification of their brutal appetites their only end. When victorious, they would ſet no bounds to their rage and vengeance, but endeavour to deſtroy, exterminate, and even devour each other[a]. Let us haſten from theſe ſcenes of horror and confuſion, of which ſeveral countries at this day exhibit a too faithful image.

A number of families united themſelves into one ſociety. The intereſts of all the members of each of theſe ſocieties became common. But ſcarcely were theſe ſocieties formed, when they commenced hoſtilities againſt each other. Theſe firſt wars would be nothing but mere incurſions. A party of men got together, they ravaged the enemy's country, deſtroyed their huts, carried off their flocks, and above all endeavoured to take priſoners, and make them ſlaves. In theſe ages they never dreamed of making conqueſts. To do miſchief to their enemies, was the only deſign of their military expeditions. When hoſtilities were ended, each party returned into their own country. It is in this manner the ſavages make war at preſent.

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[a] See *ſupra*, b. 2. p. 79.; Mem. de Trev. Fevr. 1708, p. 224.

But when a great number of families formed a conſiderable ſtate under one ſovereign, ambition had its birth, and other views were entertained. Some of theſe ſovereigns formed the deſign of enlarging the limits of their dominions. They took up arms from other motives than a deſire of doing miſchief. They propoſed more laſting advantages than a mere irruption. Policy came to the aſſiſtance of ambition, and directed its ſteps. They ſet bounds to the horrors of war, and endeavoured rather to ſubdue than to exterminate. Such was the origin of the firſt empires. Theſe were more or leſs extenſive, according to the degrees of ambition, ability, and good fortune of the princes who took up arms.

The firſt example recorded in hiſtory of a war undertaken with the deſign of making conqueſts, is as high as the age of Abraham. It is ſaid in Geneſis, that Chedorlaomer, King of Elam, had ſubdued the Kings of Pentapolis *. They continued in a ſtate of ſubjection twelve years, but in the thirteenth year they endeavoured to withdraw from his obedience [b]. This fact ſhews us that Chedorlaomer had made a moderate uſe of his victory; that he had left the kings of Pentapolis upon their thrones, on condition, no doubt, of their paying him an annual tribute.

Theſe princes having revolted, joined their forces, and entered into an alliance, to the number of five, the better to reſiſt the King of Elam, who marched againſt them the year following. Chedorlaomer, in order to ſecure the ſucceſs of his expedition, ſtrengthened himſelf with the aſſiſtance of three kings, who were probably his neighbours or his allies. He defeated the five kings of Pentapolis; but being irritated at their revolt, he reſolved to take a bloody revenge. Sodom and Gomorrah were at this time given up to be plundered. They ſeized all the proviſions that could be found in them, and carried the inhabitants into captivity [c].

* This name is given to that valley, where the five cities were ſituated, which God deſtroyed by fire. It is imagined they ſtood near the river Jordan, on the banks of the lake Aſphaltites.

[b] Gen, c. 14. v. 4.

[c] Gen c. 14. v. 11. & 16.

The ſequel of this hiſtory is well known. Abraham being informed, that Lot, his brother's ſon, was among the captives, picked out ſuch of his ſervants as were beſt able to bear arms, purſued the conquerors, defeated them, recovered the plunder and the priſoners, and reſtored the King of Sodom and his allies to their thrones [d].

The ſcriptures do not furniſh us with any other fact, in the ages we are now conſidering, that has any relation to conqueſts. Profane hiſtorians do not ſeem to have been acquainted with any conqueror more ancient than Ninus King of Aſſyria, for we muſt not rank Bacchus and Oſiris in that number. The deſign, it is ſaid, of theſe firſt heroes, was to civilize, and not to ſubject the people they overcame. Ninus, therefore, has always paſſed among the writers of antiquity, for the firſt prince who had been animated with the ambition of conqueſt, and purſued a rational plan for its accompliſhment [e]. This however is a miſtake. The reign of Ninus was long poſterior to that of Chedorlaomer [f], whoſe military expeditions ought to be conſidered as real conqueſts, undertaken with that view, and conducted upon a regular plan.

To return to what profane hiſtorians have tranſmitted concerning Ninus; this monarch, they tell us, inflamed with ambition, thought of nothing but wars and conqueſts. He began by making an alliance with the King of Arabia. Strengthened by this alliance, he attacked the Babylonians, defeated, and impoſed a tribute upon them. After this, marching from conqueſt to conqueſt, he ſubdued Media, Perſia, Armenia, and ſeveral other provinces [g]. Thus, by uniting many kingdoms under his dominion, this prince formed the famous empire of the Aſſyrians. This empire maintained itſelf a long time, through the care Ninus had taken to ſtrengthen it [h].

This monarch, at his death, committed the government to his Queen Semiramis, a princeſs of a maſculine and undaunted ſpirit, who being ambitious, and fond of glory, reſolved to purſue the footſteps of her huſband. She made war, and ſucceeded in her firſt enterpriſes. But having turned her arms againſt India, ſhe was defeated, and forced to retire [i].

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[d] Gen. c. 14. v. 14. &c.

[e] Diod. l. 2. p. 113.; Juſtin. l. 1. c. 1.; Syncell. p. 64.

[f] See *ſupra*, b. 1. art. 3. p. 42.

[g] See Diod. l. 2. p. 114. &c.; Juſtin. l. 1. c. 1.

[h] Juſtin. ibid.

Ninias, the ſon of Ninus and Semiramis, mounted the throne after the death of that princeſs. Diſliking the warlike enterpriſing humour of his parents, he employed all his care in preſerving peace, through the whole courſe of his reign [k]. From this time, the hiſtory of Aſia contains nothing concerning war, during the ages we are now examining.

We are entirely ignorant of the hiſtory of the firſt wars of the Egyptians. We hear of no conqueror among that people before Seſoſtris, whoſe reign falls in thoſe ages which are to be the ſubject of the ſecond part of this work. It is however very certain, that the military art had been known and cultivated in Egypt in the moſt ancient ages. From time immemorial, the revenues of the ſtate had been divided into three parts, one of which belonged to the prieſts, the ſecond to the king, the third to the ſoldiers [l]. It appears then, that the Egyptians had very early provided the means of raiſing troops, and that theſe troops muſt have been conſiderable for their numbers. Accordingly we ſee, that, in Joſeph's time, there was in Egypt a captain of the guard, who is repreſented in ſcripture as a conſiderable perſonage, having a particular juriſdiction annexed to his office [m]. We find alſo, that Pharaoh purſued the Iſraelites, at the firſt news of their departure out of Egypt, with a great army both of horſe and foot. The quickneſs with which, as Moſes repreſents it, that prince raiſed this formidable army [n], neceſſarily ſuppoſes, that Egypt then enjoyed a regular ſyſtem of government, that great care was taken to keep a numerous body of troops conſtantly on foot, well diſciplined, and ready to march where-ever there was occaſion. Theſe facts are ſufficient to make us think, that Egypt was one of the firſt countries where the military art had made any conſiderable progreſs. I ſhall ſay nothing at preſent of the order and diſcipline of the Egyptian armies. Not that the Egyptians, in the times we are treating of, wanted regulations on that ſubject. This is not to be imagined. But theſe regulations are unknown to us. Seſoſtris ſeems to have been the author of all thoſe ordinances we meet with in ancient authors, concerning the troops and military affairs of Egypt. I reſerve therefore the few particulars which remain relating to the military diſcipline of the Egyptians, to the age in which that prince flouriſhed.

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[i] See Diod. l. 2. p. 128. & 133.; Juſtin. l. 1. c. 2.

[k] Diod. l. 1. p. 134.

[l] See *ſupra*, b. 1. art. 4. p. 54.

[m] See Gen. c. 39. v. 1. c. 40. v. 3.

[n] See Exod. c. 14.

With reſpect to Europe, the events which happened in that part of the world, in the ages of remote antiquity, are involved in ſuch impenetrable darkneſs, that we can diſcover nothing concerning their manner of making war. We know only, that the leaders of ſome colonies, called by the ancients Titans, leaving Egypt, ſeized upon a great part of Europe, and there founded a vaſt empire, which comprehended Greece, Italy, Gaul, and Spain[a]. But the particulars of all theſe conqueſts are to us unknown. We may, I think, in general conclude, from the great eaſe with which theſe princes ſubdued ſo great an extent of country, that Europe at that time was but thinly inhabited, and that its inhabitants were not a warlike people.

It is but too viſible, how ill provided we are with facts and circumſtances relating to the ages which are the ſubject of this firſt part of our work. This is not becauſe great events and important revolutions did not then happen in the world, but becauſe we are almoſt totally ignorant of them. Even the little that is handed down to us, is ſtrangely diſguiſed with fables. Let us endeavour, however, from the glimmering lights we have, to give ſome idea of the ſtate of the military art in this period.

We can ſay nothing certain concerning their manner of raiſing troops, and forming an army in the firſt ages. I imagine that originally every body without diſtinction went out to war, except old men, women, and children. Afterwards they made choice of ſuch men as were moſt robuſt, and beſt able to endure fatigue. At laſt they hit upon the thought of allotting a certain number of men wholly to the profeſſion of arms. This ſcheme of having a body of troops always on foot, to prevent their being ſurpriſed, muſt have been the contrivance of ſome civilized nation. I think I have demonſtrated, that this practice prevailed in Egypt in the moſt ancient times [p].

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[a] See *ſupra*, b. 1. art. 5. p. 65.

It does not ſeem probable, that, in theſe ages, the troops were kept in pay. The ſoldier received no pay, and expected no other reward for his labours and ſervices, but his ſhare of the booty taken from the enemy. We ſee that in the days of Abraham there were regulations ſettled for the diviſion of the booty. This patriarch gave the tenth of the ſpoils which he had taken from Chedorlaomer, and the kings his allies, to Melchiſedec King of Salem, and prieſt of the moſt high God *. The King of Sodom, in acknowledgment of the great ſervice Abraham had done him, offered this patriarch every thing he had recovered from the enemy, but only ſuch of his own ſubjects as had been delivered from captivity by that victory. Abraham refuſed this offer of the king of Sodom; but he took care that his allies, Aner, Eſhcol, and Mamre, ſhould have their ſhare of the booty taken from the enemy [q].

It required ſeveral ages to repeople the world, and repair the deplorable deſtruction occaſioned by the deluge. The firſt armies conſequently could not be very numerous. This is confirmed by what ancient traditions tell us of the military expeditions of Oſiris, Bacchus, and the Titans. The facility, the extent, and the rapidity of their conqueſts, demonſtrate that the earth at that time was almoſt a deſert, and that they were followed only by a ſmall number of troops. It would be conſidered at preſent as a great enterpriſe, to travel over the countries which they are ſaid to have ſubdued.

The teſtimony of ſcripture ſerves alſo to ſupport what we have advanced. It is ſaid, that Chedorlaomer had ſubdued the kings of the Pentapolis. This prince was King of Elam, that is, of Perſia. It is well known at how great a diſtance this country is from the Dead ſea, on the banks of which the diſtrict called Pentapolis, was ſituated. Chedorlaomer, therefore, could not be attended by a great number of troops. It is no eaſy matter to tranſport a numerous army ſeveral hundreds of leagues. The countries too which ſeparate Perſia from the Pentapolis, muſt have been very ill peopled; otherwiſe Chedorlaomer muſt have found great difficulty in making that conqueſt, and ſtill greater in keeping it near thirteen years.

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[p] *Supra*, p. 307.

* We are not told in ſcripture upon what title Abraham gave Melchiſedec the tenth of the ſpoils taken from the Elamites; but there is no doubt the patriarch, in that particular, conformed to ſome eſtabliſhed regulation.

[q] Gen. c. 14. v. 21. &c.

The ſtrongeſt proof that the forces of Chedorlaomer, and the kings his allies, were very few, is this, that Abraham with 318 men got together in a haſte, defeated the combined army of theſe princes [r]. The ſcripture, it is true, ſays, he attacked them in the night [ſ]. But this circumſtance only implies, that the troops of Chedorlaomer were ſomewhat ſuperior to thoſe of Abraham. If we allow the army of the allied kings to have been ſix or ſeven thouſand, it will be ſufficient to anſwer all objections; and I can ſee no reaſon to imagine they were more conſiderable.

I fancy we might affirm almoſt the ſame things of the armies of Ninus and Semiramis. For no regard is due to what Cteſias and other writers have ſaid of the military forces of theſe monarchs. Their accounts bear the plaineſt marks of the moſt extravagant exaggeration. If we would believe them, the army which Ninus aſſembled for the conqueſt of Bactriana, was compoſed of ſeventeen hundred thouſand foot, two hundred thouſand horſe, ten thouſand ſix hundred chariots, armed with ſcythes [t]. By adding to this number the perſons neceſſary to attend on ſuch an army, it will follow, that Ninus had in the field more than three millions of mouths.

This is but a ſmall number, however, in compariſon of the forces which Semiramis, according to the ſame authors, ſet on foot for the conqueſt of India. Her army, ſay they, amounted to three millions of infantry, five hundred thouſand cavalry, and one hundred thouſand chariots. There were, beſides, one hundred thouſand men mounted on camels, not to mention two thouſand ſhips for paſſing the Indus [u]. According to this account, there muſt have been in this army between ſix and ſeven millions of mouths.

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[r] Gen. c. 14. v. 14.

[ſ] Ibid. v. 15.

[t] Diod. l. 2. p. 117.

They add, that the King of India made ſtill greater preparations for his defence, and aſſembled a more numerous army than that of Semiramis [x]. According to our former calculations, the army of this prince, and its attendants, might amount to near ten millions. When theſe armies met, the number of fighting men muſt have been between nine and ten millions. It is a pity Cteſias and his copyiſts have not told us, how ſuch armies were ſubſiſted, and where they found a plain to engage upon *. It would be waſting time to enter upon a ſerious confutation of ſuch improbable ſtories. The immenſe extent of country which they make Ninus and Semiramis to have conquered, is ſufficient to deſtroy their own accounts [y]. We have always a right to conclude, either that they are exaggerated, or that, if their conqueſts were as extenſive as they are ſaid to have been, the world could not be very populous, and conſequently their armies could not be very great.

I imagine alſo, that the firſt armies were wholly compoſed of infantry. The art of uſing animals in war, muſt have been unknown for ſome time. The ſavages to this day are deſtitute of this advantage; and therefore I cannot believe, that it was uſed in remote antiquity. But by degrees methods would be found out of breaking and taming animals. When this was done, it would be natural enough to think of uſing them in war. Several of them are very fit for that purpoſe. In peruſing the hiſtories of the different nations of the world, we find, that horſes, elephants, camels, dogs [z], and even lions[a], have been uſed in war. But we know not in what periods theſe cuſtoms were introduced.

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[u] Ibid. p. 130. [x] Diod. l. 2. p. 131.

* It muſt be owned, that theſe accounts appeared ſuſpicious to Diodorus. But he has endeavoured to juſtify them. See p. 117.

[y] Diod. l. 2. p. 114. 115. & 128.

[z] See Strabo, l. 4. p. 305.; Ælian. hiſt. anim. l. 7. c. 38.; Plin. l. 8. ſect. 61. p. 463.

The horſe, of all animals, is moſt proper for war; and it is probable that this was ſoon obſerved. The queſtion is, to know in what manner this animal was originally uſed in battle. He may be uſed in two different ways, either by yoking him to a chariot, or by mounting him. We muſt firſt examine whether the practice of yoking or mounting a horſe was prior, and which of them is moſt eaſy and natural, and then determine in which of theſe two ways the horſe was firſt uſed in battle.

Without entering into all the diſquiſitions which this queſtion might occaſion, I am perſuaded, the horſe was uſed in drawing and carrying loads, before he was mounted.

The wildneſs of the moſt mettleſome horſe is curbed, or at leaſt diminiſhed, by the weight he draws or carries. It ſeems then the moſt ſimple and eaſy manner of making uſe of horſes, that with which men probably began, was to yoke them to ſome weight, or to lay it upon them[b]. In the preceding book, I have propoſed ſome conjectures on the origin of chariots, and ſhewn that this invention was exceeding ancient. I obſerved alſo, that theſe machines were not then more curious in their conſtruction than our carts[c]. Therefore it would not require a great deal of ſkill to drive them.

The caſe is not the ſame with riding. This art appears to me more complex and difficult, than that of guiding a car. Being leſs natural, it probably occurred to mens thoughts the laſt. Accordingly we ſee from all the remaining monuments of antiquity, that horſes were then much more commonly uſed in drawing than in carrying[d]. With reſpect to the preciſe point we are now examining, viz. whether chariots or cavalry were firſt uſed in battle, hiſtory decides, that the uſe of chariots preceded that of cavalry[e]. Let us take notice, further, that it muſt have been originally much eaſier to make uſe of chariots, than of cavalry in battle. The combatant who mounted a chariot of war, was not diſtracted with the care of directing the horſes. He had always a charioteer with him, who acted that part. The horſeman has not this advantage. His attention muſt neceſſarily be divided between the care of fighting, and that of managing his horſe.

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[a] See Lucret. l. 5. v. 1309.; Diod. l. 1. p. 57.; Plut. t. 2. p. 358.
[b] See Acad. des inſcript. t. 7. M. p. 315.
[c] *Supra*, b. 3. p. 264.
[d] See part 2. b. 5. chap. 3. p. 64.
[e] Palæphat. de incred. c. 1. p. 9.

Notwithſtanding this, I imagine, that in ſome countries, ſuch as Paleſtine, Arabia, Egypt, &c. which were ſoon civilized, they would not be long before they got on horſeback, and conſequently they might make uſe of cavalry in battle in very ancient ages. We ſee in Geneſis, that the art of riding muſt have been known in Paleſtine in the days of Jacob [f]. This art too was practiſed by the Arabians in the age of Job [g]. I have already ſaid, that I believe Job to be cotemporary with Jacob, and that he lived in Idumea on the confines of Arabia [h]. With reſpect to Egypt, it was in this country, if we will give credit to profane hiſtorians, that riding was invented. They differ only about the epocha of this invention. Some attribute it to Orus the ſon of Oſiris [i]; and, by that means, place it in the remoteſt ages. Others give the honour of it to Seſoſtris [k], who did not reign till after the ages, whoſe ſkill in the military arts we are now examining [l]. It is not eaſy to determine which of theſe two opinions are beſt founded. It ſeems to me, however, more likely to be true, that Orus was the inventor of riding. This opinion is ſupported by an ancient tradition preſerved by Plutarch [m]. Beſides, is it to be imagined, that the Egyptians, whoſe inventions of all kinds are ſo ancient, ſhould have remained to the reign of Seſoſtris, without diſcovering the principal purpoſe the horſe is capable of ſerving? In fine, we ſee, that, in the days of Jacob, they had horſes in Egypt, and were accuſtomed to ride them [n]. Diodorus informs us alſo, that the kings of Egypt, the predeceſſors of Seſoſtris, bent their whole thoughts to keep a great number of horſes. With this view, they had built a hundred ſtables for 200 horſes each, on the banks of the Nile, between Thebes and Memphis [o]. We may add to all this, that it is not probable, that cavalry were introduced into battles immediately after the invention of riding; yet we muſt admit this, if we adopt the opinion of thoſe authors who attribute the invention of this art to Seſoſtris, ſince all hiſtorians agree that he had cavalry in his armies [p]. Nothing, therefore, hinders us to believe, that, towards the concluſion of the period we are now inquiring into, ſome nations might make uſe of cavalry in battle, though at the ſame time we muſt remark, that anciently the chariots were the principal ſtrength of armies, and much more generally uſed than cavalry. We ſhall ſee ſome ſtriking proofs of this, in the ſecond part of this work.

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[f] Chap. 49. v. 17.

[g] Chap. 39. v. 21. &c.

[h] See our diſſertation.

[i] Dicæarchus apud Schol. Apol. Rhod. l. 4. v. 275.

[k] Id. ibid.

[l] See part 2. b. 1. chap. 3.

[m] See t. 2. p. 358.

[n] See Gen. c. 49. v. 17. c. 50. v. 9.

The firſt arms that men uſed, would be ſuch as ſtones, ſticks, the horns of animals, &c [q]. After ſome time they thought of hardening their ſticks in the fire, and ſharpening them. This ſort of defenſive arms [r] has been, and ſtill is uſed in many countries [s]. It was not long before they begun to cut pieces of wood into the form of clubs; a kind of arms very common in ancient times [t], and ſtill uſed by ſeveral nations [u]. I imagine likewiſe, that in the firſt ages they might fight with axes. With theſe the writers of antiquity commonly equipped their heroes. Theſe were formerly, and are at preſent, the principal arms of ſeveral nations. The cutting part of theſe hatchets was not originally of metal. In the firſt ages they were unacquainted with the art of procuring metals from the earth, and working them. The moſt ancient hatchets were armed with ſharp ſtones [x], as thoſe of the ſavages are at preſent [y]. The lance and pike may be named among the arms that were firſt invented. The uſe of them was very ancient and univerſal.

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[o] L. 1. p. 55.
The ruins of theſe ſtables were to be ſeen in Diodorus's time.

[p] Diod. l. 1. p. 64.

[q] See Lucret. l. 5. v. 1283. &c.; Horat. ſerm. l. 1. ſat. 3. v. 100. &c.; Diod. l. 1. p. 28. l. 3. p. 194.; Hygin. fab. 274.; Plin. l. 7. ſect. 57. p. 415.; Palæphat. in Chron. Alex. p. 45.; Cedren. p. 19.

[r] Herod. l. 7. n. 71.; Strabo, l. 3. p. 255. l. 17. p. 1177.; Suid. t. 1. p. 90.; Conq. du Perou, t. 1. p. 76.

[s] Voyage de Dampier, t. 2. p. 143.; Rec. des voyages de la campagnie des Ind. Holl. t. 4. p. 563.

[t] Diod. l. 1. p. 28.; Palæphat. in Chron. Alex. p. 45.

[u] Lettr. édif. t. 20. p. 134.

Thoſe arms which have been mentioned, were proper only for cloſe fighting. Men ſoon endeavoured to find out methods of annoying their enemies at a diſtance; and it was not long before they invented arms proper for that purpoſe. I know no arms of this kind ſo ancient and ſo univerſal as bows and arrows. Iſhmael, it is ſaid in ſcripture, was an expert archer [z]. Eſau took his bow and quiver, and went to the field [a]. We find bows and arrows among the wildeſt and moſt ignorant ſavages, even in the iſlands moſt diſtant from the continent. Theſe arms at the beginning would be but clumſily made. The arrows would be pointed with hard wood, flints, the ſharp bones of beaſts or fiſhes [b], as they are at preſent among ſeveral ſavage nations, who are ignorant of the art of working metals [c].

I do not find that the ſling was ſo ancient as the bow and arrow, though the invention of it ſeems more obvious and eaſy. The ſling is far leſs complicated and artificial; and yet I cannot diſcover that it was either ſo anciently or ſo univerſally uſed as the other [d]. Job is the only writer, in thoſe diſtant ages, who makes mention of the ſling [e]. The ancients aſcribed the invention of it to the Phœnicians [f].

As men became more knowing and civilized, they invented new kinds of arms, or improved the old. At laſt they found out the art of working metals. It was natural to apply this diſcovery to the advancement of the military art. Swords and ſabres were then invented, arms which have never been known to any but civilized nations, and to which the ſavages ſtill continue ſtrangers. Profane hiſtorians attribute the invention of the ſword to Belus [g], King of Aſſyria, and father of Ninus [h]. But not to mind theſe vague uncertain traditions, we ſee from ſcripture that the ſword was known in Aſia in the remoteſt ages. Abraham took his ſword to ſacrifice Iſaac [i]. Simeon and Levi entered Sechem ſword-in-hand, to ſlaughter its inhabitants [k]. Theſe firſt ſwords, as I have endeavoured to prove elſewhere, were of copper and not of iron [l].

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[x] See ſupra, b. 2. p. 78. & ch. 4. p. 140. 141.

[y] Ibid. p. 141. & 156.

[z] Gen. c. 21. v. 20.

[a] Ibid. c. 27. v. 3.

[b] Tacit. de mor. Germ. n. 46.; Herod. l. 7. n. 69.; Photius, p. 1333.; Bibl. anc. & mod. t. 22. p. 24.

[c] Lettr. édif. t. 1. p. 132. t. 7. p. 43.; Recueil des voyages au Nord, t. 8. p. 175.; Hiſt. de la Virginie, p. 313.; Voyage de Dampier, t. 1. p. 94.; N. relat. de la France equinox, p. 169.

[d] See l'Eſcarbot, hiſt. de la N. France, p. 853.

[e] Chap. 41. v. 19.

[f] Plin. l. 7. ſect. 57. p. 415. See alſo Strab. l. 3. p. 255.

It is not enough to know how to attack our enemy with advantage; it is alſo neceſſary to know how to ſecure ourſelves from his attacks. At firſt men would make the ſame things ſerve for defenſive arms, which ſerved to defend them from the injuries of the air. The ſkins of animals anſwered both theſe purpoſes [m]. The firſt kings of Egypt dreſſed themſelves for war in the ſkins of bulls and lions [n]. We may remark likewiſe, that all the ancient heroes are repreſented in this kind of warlike dreſs. By and by more proper and effectual means of defending the body were invented, means which were equally commodious and ſecure. The ſhield, the helmet, and the cuiraſs, are the defenſive arms which we know were uſed in ancient times. But we cannot diſcover in what country or at what time theſe different pieces of armour were invented. We know only that they are of very great antiquity [o]. I imagine, further, that the ſhield was the moſt ancient and the moſt univerſally uſed, becauſe it is uſed by the ſavages, who know nothing of the helmet or the cuiraſs. I might add, that it is the only piece of defenſive armour mentioned in the books of Moſes [p]. The Egyptians claimed the honour of this invention [q].

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[g] Hygin. fab. 274.; Caſſiodor. var. l. 1. ep. 30. p. 15.

[h] See Voſſ. de idol. l. 1. c. 24. p. 68. col. A.

[i] Gen. c. 22. v. 10.

[k] Ibid. c. 34. v. 25.

[l] *Supra*, b. 2. chap. 4. p. 157.

[m] See Diod. l. 1. p. 21. & 28.; Feith. antiq. Hom. l. 4. p. 463.

[n] Diod. l. 1. p. 21.

[o] See Job, c. 39. v. 23. c. 41. v. 6. & 17.

In all ages, men have adapted their own arms to thoſe of their enemies. Every one endeavoured to imitate the diſcoveries of his neighbour. A nation which invents new arms, or a new way of fighting, can enjoy them alone but a little while, and can derive but a momentary advantage from them. Nations in making war have inſtructed each other, and borrowed from each other the arts of defence and of attack.

It is difficult to comprehend how armies were ſubſiſted in ancient times. We do not find that they had the precaution to form magazines of forage and proviſions. I imagine that each ſoldier carried a quantity of proviſions ſufficient to ſubſiſt him for a certain time. We know that this was the practice of the Iſraelites [r], the Greeks [ſ], and Romans [t]. This cuſtom, it appears, prevailed in the days of Moſes, and probably before. The ſcripture tells us, that when the Iſraelites went out of Egypt, they took meal, and putting it in their cloaks, laid it on their ſhoulders [u]. It is probable this had been their practice in former times when they went to war. Each ſoldier carried his own proviſion of corn or meal. In theſe diſtant ages every one uſed to grind his own grain, either between two ſtones, or in ſmall hand-mills. They baked their bread, not in ovens, but under the aſhes, or on flat ſtones or plates of metal. This is ſtill the practice all over the eaſt [x]. Beſides, the firſt men led a very abſtemious and frugal life. It was then much eaſier to ſubſiſt armies than it is at preſent. The ſavages of America furniſh more than

[p] Deut. c. 33. v. 29.
[q] Plato in Tim. p. 1044. D.

[r] 1 Sam. c. 17. v. 17. See Calmet, t. 8. p. 512.

[ſ] Suid. *voce* Ἔχοντας σιτί, t. 1. p. 930.; Schol. Ariſtophan. ad Equit. v. 1077. p. 219.; ad Acharn. v. 196. p. 243. v. 1096. p. 274.

[t] Cæſar, de bello Gall. l. 1. n. 4.; T. Livius, l. 44. n. 2. l. 43. n. 1.

[u] Exod. c. 12. v. 34.

[x] See *ſupra*, b. 2. ch. 1. p. 103. & 104.

ſufficient proof of this[y]. Let us add, that their campaigns, as I imagine, were not long. They made war with great quickneſs and impetuoſity. There were then no places of ſtrength to ſtop the progreſs of an army. A ſingle victory laid an immenſe country open to the conquerors. They ſeized on every thing, eſpecially on all proviſions[z].

With regard to forage, the ancients had no occaſion to give themſelves much trouble, as they had no cavalry in their armies, as theſe armies were not numerous, nor incumbered with much luggage. Even when they began to make uſe of horſes in war, their maintenance would not give them much trouble. As the cavalry in the ancient armies were but few, they would always find ſufficient forage in the fields.

As to incampments, we cannot ſpeak with certainty about them. We know not what was the practice of the firſt ages in this particular. We ſee that the uſe of tents was exceeding ancient. The patriarchs had no other habitations[a]. They might therefore make uſe of tents very early in military expeditions. But does it follow from thence, that in the ages we are now ſpeaking of, they knew the art of forming a camp, that is, of poſting themſelves to advantage, of pitching their tents in lines, of intrenching? &c. This is what I dare not affirm. Xenophon ſays, that the nations of Aſia ſurrounded their camps with very deep ditches, and ſometimes even fortified them with ſtrong paliſadoes[b]. But the ages of which that author wrote, were ſo long poſterior to thoſe we are now examining, that we can hardly gather any thing from him, concerning the primitive cuſtoms of the nations he ſpeaks of.

One thing which has always diſtinguiſhed civilized nations from ſavages, is, that the former knew how to join military diſcipline to natural courage, to obey their commanders, keep their ranks, and reſtrain the ſallies of raſh impetuous fury.

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[y] See le voyage de Frezier, p. 57. & 62.; Mœurs des ſauvages, t. 2. p. 247.

[z] See Gen. c. 14. v. 11.

[a] Gen. c. 9. v. 21. c. 12. v. 8. c. 13 v. 18.

[b] Cyrop. l. 3. p. 80.

We can ſay nothing concerning their manner of drawing up their troops in the primitive ages, nor of the order they obſerved in battle. Originally the tactic art had no fixed principles; they engaged in a tumultuary manner, without rule, order, or diſcipline. Military ranks of command were not then inſtituted. It is alſo probable, that they had no idea of ſtandards or colours [c]. But experience would ſoon make them ſenſible how dangerous a thing it was to have no other guide in battle but blind impulſe. They would preſently diſcover, that many precautions were neceſſary to be taken to ſecure ſucceſs. Theſe reflections produced the ſeveral evolutions, and other military arts practiſed by civilized nations. It then became neceſſary to chuſe a certain number of perſons, to direct the ſeveral movements of an army, to give the neceſſary orders, and ſee them executed. I know not at what time the cuſtom was introduced of dividing troops into different bodies, and putting a certain number of men under the command of a certain number of officers. I find frequent mention in ſcripture of the general of the army of Abimelech. This prince reigned in Gerar in the days of Abraham [d]. I ſee likewiſe, that from before Joſeph's time there was a commander in chief of the army in Egypt [e]. But I find no where any mention of inferior officers, and I doubt very much whether the different ſubordinate military ranks were inſtituted in the ages now under our conſideration.

I cannot ſay this of colours and military enſigns. Every thing inclines us to think that theſe ſtandards for guiding the troops in battle, for directing them how to rally, and to know each other, were very early invented. We know not indeed in what age or in what country theſe were firſt uſed, but the uſe of them muſt have been extremely ancient. We ſee, that the Iſraelites, in the wilderneſs, marched in different diviſions, every one, it is ſaid, under the ſtandard and enſign of his own tribe and company [f]. It is probable, that Moſes had learned the uſe of ſtandards from the Egyptians, who had been acquainted with them in the remoteſt ages [g]. Beſides, this invention ſeems pretty obvious, and would not require very deep reflection. It is not, as we ſee, unknown to the ſavages [h].

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[c] See Diod. l. 1. p. 96. 97. & 100.

[d] Gen. c. 21. v. 22.

[e] Ibid. c. 39. v. 1.

[f] Num. c. 2. v. 2.

The uſe of inſtruments of martial muſic, as trumpets, clarions, &c. was extremely ancient, and the idea of them very natural [i]. The firſt man who happened to blow into a reed, a horn, or large ſhell, would be ſtruck with the ſound. It would preſently occur, that this diſcovery might be of great uſe in war, either for publiſhing the orders of the general, and acquainting the troops with what they had to do, or even for animating them to battle. The firſt inſtruments of martial muſic would be large reeds, pieces of hollow wood, big ſhells, the horns of animals, &c. All theſe kinds of trumpets anciently were [k], and ſtill are uſed in ſeveral countries [l]. This diſcovery would be gradually improved, by imitating, in metal, the ſtructure of thoſe natural bodies, which, by blowing into them, gave a loud alarming ſound. It was in this manner the trumpet was invented. I ſhall not take the trouble to mention the uncertain traditions of profane authors about the invention of this inſtrument. I believe it to be much more ancient than they make it. It is ſpoke of in Job [m], as an inſtrument already uſed in war, and employed in ſounding the charge [n]. It is ſaid alſo, that Moſes commanded two trumpets to be made of beaten ſilver [o]. This is ſufficient to ſhew the great antiquity of this inſtrument. I ſhall only obſerve further, that trumpets in ancient times were moſt commonly made of copper [p], a metal which gives a very piercing ſound.

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[g] See Diod. l. 1. p. 100. 101.

[h] Mœurs des ſauvages, t. 2. p. 199.

[i] Job, c. 39. v. 24. 25.

[k] See Varr. de ling. Lat. l. 4. p. 19. *voce* Arma.; Virgil. Æneid. l. 6. v. 171.; Strab. l. 15. p. 1041. C.; Hygin. fab. 235.; Opuſcul. mythol. p. 122.; Anciennes relations des Indes & de la Chine, p. 3.; Hiſt. des Incas, t. 1. p. 187.; Schol. Hom. ad libr. 18. Iliad. v. 219.; Potter, archæolog. Gr. l. 3. c. 9. p. 480.

[l] Voyage de Frezier, p. 57. & 60.; Rec. des voyages de la compagn. des Ind. Holland. t. 4. p. 310.; Voyag. de Jean de Lery, p. 336.; Hiſt. gen. des voyag. t. 1. p. 14.; Mem. de Trev. Novembre 1714. p. 1962.

[m] Chap. 39. v. 24. 25.

[n] Id. ibid.

[o] Num. c. 10. v. 2. c. 31. v. 6.

Drums, which are uſed at preſent by all nations, do not appear to me to have been ſo ancient as trumpets. We find certain traditions, however, in ſome authors which ſeem to contradict this opinion [q]; but they are blended with ſo many fables, that they do not appear to me ſufficient to authenticate a fact, of which we find no other veſtiges in all antiquity. Let us now ſay a few words of that part of the military art which relates to the defence and the attack of places.

I imagine, that men, in the very firſt ages, might have ſome notions of the manner of fortifying and defending places. Nature has pointed out the art of fortification. In all countries, we meet with ſome places of ſuch a ſituation, as to enable a ſmall number of troops to reſiſt a much ſuperior force. They muſt have ſoon perceived the great uſe that might be made of ſuch ſtrong poſts, to defend the entrance into a country, to retire to in caſe of inferiority of force, or of a defeat. Theſe firſt obſervations would lead them to the art of fortifying places. They would ſoon endeavour to ſecure towns and cities from invaſions. Theſe were originally open and without defence. Nothing obſtructed the entrance of a victorious army. Such, for example, in all probability, were the cities of Sodom and Gomorrah, in the days of Abraham. For we find Chedorlaomer entered, and plundered them immediately after his victory over the kings of Pentapolis [r].

By degrees, methods were found to render cities defenſible. In the firſt ages, no doubt, they contented themſelves with digging a broad and deep ditch round about them; the earth being thrown out on the ſide towards the place, formed a kind of rampart. After this they began to think of ſurrounding them with walls. Theſe precautions would be ſufficient, in the firſt ages, to defend cities from the firſt efforts of a victorious enemy. For in theſe times they muſt have been very ignorant in the art of beſieging places. In all ages, the arts of defence and of attack of places have been proportioned to one another.

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[p] Virgil. Æneid. l. 6. v. 165.

[q] Diod. l. 2. p. 152.

[r] Gen. c. 14. v. 10. 11. et 16.

As wars became more frequent, the arts of defending and of beſieging cities would be reciprocally improved. Several methods would be ſucceſſively invented. But this is not the proper place to mention them. I do not imagine, that this part of the military art had made any great progreſs in the ages now under our conſideration.

I acknowledge there is a great deal ſaid in the hiſtories of Ninus and Semiramis, of the grandeur and beauty of the fortifications of Bactria, and of the long defence which that city made [f]. But this, I am perſuaded, ought to be ranked in the number of thoſe fables with which Cteſias and other Greek writers have incumbered the hiſtories of Ninus and Semiramis. This is the only example of this kind to be found in the hiſtory of the ages we are now examining, in which there is not one word ſaid of ſieges, or any thing that has relation to them. I do not, however, pretend to infer from thence, that all means of defending places were then quite unknown, but only that this art was very imperfect. The rapidity of the conqueſts of Oſiris, Bacchus, the Titans, and even of Ninus and Semiramis, is a proof of this. Could theſe princes, in the ſhort ſpace of a few years, have ſubdued ſuch an immenſe tract of country, if the art of fortification had then been brought to any tolerable degree of perfection? They muſt often have met with places which would have retarded the rapidity of their progreſs. I am perſuaded, therefore, that there were then but very few fortified cities, and that the fortifications of theſe few were very imperfect. We ſhall ſee reaſon to be convinced of this, when I give an account of the conqueſts of Seſoſtris, in the ſecond part of this work [t].

This, I imagine, is almoſt all that can be ſaid at preſent on the military art. I ſhall only propoſe a few reflections on the ſpirit with which they made war in theſe firſt ages, and the way in which conquerors uſed their victories.

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[f] Diod. l. 2. p. 118. 119.

[t] B. 5. chap. 1.

All the remaining monuments of antiquity ſhew, that theſe firſt wars were carried on with extreme fierceneſs and barbarity. They plundered and laid waſte towns and countries, nothing was ſpared. Nations at war aimed at nothing leſs than the entire deſtruction and extermination of each other. This cruel rage put them upon poiſoning their arrows; a horrid practice, which never could have been invented or admitted but by the moſt ſavage nations, in the moſt barbarous ages, ſuch as thoſe of which we are now treating [u]. The conſequences of their victories were as horrible as their battles. They maſſacred and cut the throats of whole nations [x]. Sovereigns were no more reſpected than the loweſt of their ſubjects. Through the fabulous tales and extravagant exaggerations which disfigure the hiſtory of Ninus, we may ſtill diſcern the cruel ſanguinary ſpirit which reigned in the wars of theſe primitive ages.

Ninus attacks, defeats, and takes the King of Babylon. How does he uſe his victory? He puts the captive monarch and all his children to death. He then turns his arms againſt the Medes, and conquers them. Their King is taken; the cruel Aſſyrian crucifies him, his Queen, and their ſeven children [y]. That which we now call the law of nations, a law ſacred and inviolable, both in peace and war, was quite unknown in theſe primitive times. The mildeſt treatment which a conquered nation could hope for, was to be carried into captivity [z].

It is in the abuſe which theſe firſt conquerors made of their victories, we muſt look for the origin of the law of ſlavery, that odious law which we find eſtabliſhed in an antiquity almoſt immemorial [a]. I have ſaid, that originally they gave no quarter to the conquered. But covetouſneſs, which finds a place in the moſt fierce and cruel boſoms, came to the aſſiſtance of humanity. Conquerors began to diſcern their true intereſt, and the beſt uſes they might make of their victories. They conſidered, that inſtead of butchering their conquered enemies, it would be better to make them ſlaves, and to employ them in ſuch labours and drudgery as they thought proper. By this means they procured themſelves real and ſolid advantages. Beſides, they could ſell their priſoners, when they had a greater number than they thought proper to keep [*]. Thus avarice put a ſtop to ſlaughter and bloodſhed. The ſame principle, together with ambition, prevented the devaſtation of countries. Conquerors became ſenſible, that the acquiſition of kingdoms would be of no value, if they entirely ruined them.

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[u] See Job, c. 6. v. 4. according to the Hebrew.

[x] Gen. c. 14. v. 5. 6. 7.

[y] Diod. l. 2. p. 114.

[z] See Gen. c. 14. v. 14. c. 31. v. 26.

[a] Gen. c. 17. v. 12. and 23.

Men cannot always live in a ſtate of war. After ſome time, it becomes neceſſary to lay down their arms, and put an end to hoſtilities. The firſt treaty of peace was owing to this mutual imbecillity of two contending nations. Neceſſity made them both think of the means of procuring tranquillity. They agreed at laſt to terminate their diſputes by a ſolemn treaty, which might regulate their mutual pretenſions, reſtore union and concord, and ſecure the peace of both nations. We have examples in ſcripture of ſuch treaties of peace made in the moſt ancient times. We even ſee, that in theſe ages they knew how to take meaſures for preventing future animoſities and diſputes [b]. Their manner of making theſe ſolemn deeds in theſe times, deſerves to be deſcribed.

The public good required, in all ages, that the memory of treaties of peace and alliance ſhould be preſerved. I have taken notice in the preceding books, that the art of writing was unknown in the firſt ages. I have given an account likewiſe of the methods which were invented originally to ſupply this defect, and aſcertain the tenour of public deeds. We have ſeen that all agreements were then tranſacted in the preſence of witneſſes [c]. But in ſolemn tranſactions, ſuch as treaties of peace or alliance, beſides witneſſes, they obſerved certain formalities, equally proper to aſcertain their authenticity, and perpetuate their memory. They ſet up an altar, planted a grove, erected monuments of ſtone, ſacrificed victims, gave a commemorative name to the place where theſe tranſactions had paſſed, &c. Both ſcripture and profane hiſtory furniſh ſeveral examples of theſe primitive practices.

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[*] *Vendere cum poſſis captivum, occidere noli:*
Serviet utiliter. Hor. epiſt. l. 1. ep. 16. v. 69.

[b] Gen. c. 21. v. 22. &c. c. 26. v. 26. & 29. &c.

[c] B. 1. p. 27. & b. 2. chap. 6. p. 189.

On a certain occaſion, Abimelech, King of Gerar, came to Abraham, and required of this patriarch to ſwear by the name of God, that he would not hurt his poſterity, or do any injury to his ſubjects. Abraham promiſed all this, but then complained to Abimelech of the violent manner in which his ſubjects had deprived him of a well which he had dug. Abimelech declared his ignorance of what had been done. Abraham then makes an alliance with Abimelech, and taking ſeven ſheep, he gives them to that prince, ſaying, "Thou ſhalt take theſe ſeven ſheep of my "hand, that they may be a witneſs unto me, that I have "digged this well [d]." Moſes adds, that they called the place where this alliance was made, *Beerſheba*, that is, *the well of the oath*, becauſe Abraham and Abimelech had there contracted and ſworn mutually an alliance.

When Jacob made an agreement with Laban, the ſcripture ſays, he took a ſtone, and having ſet it up for a monument, he ordered his people to bring other ſtones, which being formed into a heap, Laban ſays to Jacob, "This heap "and theſe ſtones ſhall be a witneſs between me and thee." Laban called this heap of ſtones, *The heap of witneſs*, and Jacob called it *The heap of witneſſing*; each, it is ſaid, according to the idiom of his own language. The place was thence forward called *Galeed* [e].

Theſe primitive cuſtoms continued a long time, even after the invention of writing. Homer furniſhes a proof of this in his account of a treaty of peace between the Greeks and Trojans.

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[d] Gen. c. 21. v. 22. See alſo c. 26. v. 15. 18. 20.
A well was not a trifling matter in theſe countries where water was extremely ſcarce, and not to be come at without much difficulty and labour. Wells were very valuable eſtates to people whoſe whole wealth conſiſted in their cattle.

[e] Gen. c. 31. v. 44. &c.

The Greeks and Trojans being ready to engage, propoſed to terminate their differences, by a ſingle combat between Paris and Menelaus. They ſtipulate the conditions on each ſide, according to the event of the combat. Priam and Agamemnon advance into the middle, between the two armies. Lambs are brought for ſacrifices, and wine for libations. Agamemnon cuts a lock of wool from the head of the lambs. The Greek and Trojan heralds give ſome of it to the chiefs of each army. Agamemnon proclaimed the conditions of the treaty with a loud voice. The lambs were ſacrificed, the libations made, and thus the agreement was ratified without any further formalities [f]. Theſe methods were ſufficient to authenticate treaties of peace in theſe remote ages, when the articles of them were few and plain. I do not know whether they were more religiouſly obſerved then than they have been ſince.

Having thus diſcuſſed the ſeveral particulars that have any relation to the military art, it may not, I think, be improper to ſtop a moment, to conſider what muſt have been the conſequences of wars and conqueſts in theſe primitive times, and what changes muſt have reſulted from them, in the circumſtances and condition of the ſeveral nations of the world.

Though hiſtory affords us but little light into the events which happened in the ages we are now conſidering, yet we may diſcover, that there were ſome very conſiderable and extenſive empires formed even in theſe times. Chedorlaomer, Ninus, and, no doubt, ſeveral other conquerors whoſe names and victories have not been handed down to us, extended their authority over ſeveral countries, and united various cities and kingdoms under their dominion, even in theſe firſt ages after the deluge. It is not only on account of the progreſs of the military arts, that theſe conqueſts merit our attention; we ought, I will ſay it, to conſider them in a more general, and much more intereſting point of view.

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[f] Iliad. l. 3. v. 86. &c.

When we reflect on the various evils which flow from war, we cannot but look upon it as one of the moſt terrible calamities that afflict mankind. Yet we muſt acknowledge, that much good has reſulted from this great evil. Wars, and the revolutions which they have occaſioned, have mingled mankind together, and blended their ſentiments, manners, and languages a thouſand different ways. This has been of infinite advantage to the world: by this means knowledge has been increaſed and propagated, and diſcoveries have been multiplied. Conqueſts, by uniting many nations under one ſovereign, have formed great and powerful empires, out of the ruins of many petty ſtates. In theſe great empires, men began inſenſibly to form clearer views of politics, juſter and more ſalutary notions of government. Experience taught them to avoid the errors which had occaſioned the ruin of the nations whom they had ſubdued, and put them upon taking meaſures to prevent ſurpriſes, invaſions, and the like misfortunes. With theſe views they fortified cities, ſecured ſuch paſſes as might have admitted an enemy into their country, and kept a certain number of troops conſtantly on foot. By theſe precautions ſeveral ſtates rendered themſelves formidable to their neighbours, and none durſt lightly attack powers which were every way ſo reſpectable. The interior parts of ſuch mighty monarchies, were no longer expoſed to ravages and devaſtations. War was driven far from the centre, and only infeſted the frontiers. The inhabitants of the country and of the cities began to breathe in ſafety. The calamities which conqueſts and revolutions had occaſioned, diſappeared; but the bleſſings which they had produced, remained. Ingenious and active ſpirits, encouraged by the repoſe which they enjoyed, devoted themſelves to ſtudy. It was in the boſom of great empires, the arts were invented, and the ſciences had their birth [g].

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[g] See *ſupra*, b. 2. chap. 3. p. 139.; and b. 3. chap. 6. p. 272. &c.

BOOK

BOOK VI.

Of Manners and Cuſtoms *.

THE ways of thinking, and cuſtoms peculiar to a people, are derived, partly from the climate in which Providence has placed them, partly from the degrees of knowledge they have poſſeſſed in each period, and partly from various accidental and temporary cauſes. Accordingly, we may often obſerve a very viſible difference between the manners of a nation in one age and in another, and ſometimes even in the ſame age. There are, however, a great number of ancient cuſtoms which have been eſtabliſhed, we cannot well tell, either how or wherefore. Time has ſucceſſively aboliſhed or confirmed them, and it would be almoſt as difficult to give a reaſon for the new cuſtoms as for the old. Such changes indeed were not very frequent in the firſt ages: in general, we may perceive in them a great conſtancy of manners and uniformity of cuſtoms. The ſeveral nations whoſe ancient hiſtory has come down to us, may have varied, however, in this particular, in ſo long a courſe of ages.

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* Of all the ſubjects we have had occaſion to ſpeak upon, there is none more curious and intereſting, than this of manners and cuſtoms: and at the ſame time, there is none of which it is more difficult to give a clear and preciſe definition. Theſe words, *manners, cuſtoms, uſages*, excite ideas in our minds more eaſily felt than expreſſed. I imagine, however, that we may underſtand by the manners of a people, their way of judging on the morality of human actions, and the principles which they conſtantly follow, with regard to vice and virtue. What is morality but the ſcience of manners, that is, of thoſe principles which form the heart to virtue, and of thoſe actions which are agreeable or contrary to that ſacred and immutable order which ought to regulate our whole conduct? It muſt be owned that all the nations of the world have agreed pretty well on this important article. The fundamental principles of morality do not ſeem to have been affected by thoſe prejudices which ariſe from difference of genius, climate, and government.

Cuſtoms, again, are certain habitudes and practices in the common affairs of civil life, certain rules which direct the external deportment of a people either in their public appearances, or their domeſtic œconomy. In this book; therefore, I conſider theſe two objects in one point of view, which in philoſophical preciſion are very diſtinct.

But whatever real difference there may be between manners and cuſtoms, theſe two words in many languages are almoſt ſynonymous. *Manners* in Engliſh, *mœurs* in French, *mores* in Latin, *coſtumi* in Italian, *coſtumbres* in Spaniſh, ſignify equally *manners* and *cuſtoms*. In Greek, all the difference between ἦθος, *manners*, and ἔθος, *cuſtoms*, conſiſts in one letter. It would be eaſy to prove, that originally ἦθος had both theſe ſignifications. This affinity, no doubt, ariſes from hence, that, in all ages and countries, manners have had a great influence upon cuſtoms, and cuſtoms upon manners. It has even been very long before ſeveral nations had any manners, properly ſo called. I ſhall uſe theſe two words, therefore, *manners* and *cuſtoms*, indifferently, without reſtricting myſelf to a ſtrict philoſophical preciſion. It would be very difficult, if not impoſſible, to diſtinguiſh preciſely what belongs to manners, and what to cuſtoms, in ſpeaking of nations, in theſe ages, which had but confuſed notions of both.

It is in vain to look for ſettled maxims of conduct, or conſiſtent principles of morality, but among civilized nations. It was the reunion of families, which gave birth to the manners and cuſtoms of all the different nations of the world. I have ſaid elſewhere, that the firſt laws were eſtabliſhed by tacit agreement. It was the ſame with the manners and cuſtoms of civil life. As ſoon as a ſociety was formed, the members which compoſed it, tacitly agreed to obſerve ſuch or ſuch principles of morality, to follow ſuch or ſuch modes in their external deportment. But if it is eaſy to aſſign reaſons for the eſtabliſhment of the greateſt part of the primitive laws, it is as difficult to explain the motives which made the firſt ſocieties adopt a number of cuſtoms which appear directly contrary to reaſon and good ſenſe. They ſeem to have been dictated by mere caprice and whim. For this reaſon, it is in this particular of cuſtoms and manners, that nations, even the moſt civilized, differ the moſt ſenſibly. We ſee the ſame cuſtom, the ſame rule of behaviour, alternately approved in one country, and condemned in another. In one place, ſuch an action is condemned as a capital offence againſt good manners, in another place it is countenanced and recommended. What would be the moſt ſhocking rudeneſs in one country, is the higheſt refinement of politeneſs in another. I ſhall not purſue this parallel any further, though it might be carried on almoſt without end.

But amidſt that prodigious variety of cuſtoms which characterize different nations, we may ſtill perceive a pretty general agreement on ſome particular ſubjects. I do not deſign to quote any of the great fundamental principles of morality, ingraven on the hearts of all men by the Supreme Being, and without which no ſociety can ſubſiſt; I ſpeak only of thoſe cuſtoms which affect nothing but the common intercourſe of civil life. There are ſome of theſe in which all nations ſeem to agree. For example, in all ages, and in all countries, not excepting even the ſavages, it has been a cuſtom to diſtinguiſh the two ſexes by their different garbs. There have been likewiſe, in all times and places, certain exterior ornaments and decorations to diſtinguiſh perſons inveſted with high dignities, and to render them conſpicuous. The keeping ſolemn feſtivals on ſome particular occaſions, is a cuſtom which has always and every where prevailed. But for one of theſe cuſtoms which are common to all nations, and may be eaſily accounted for *, we meet with a multitude of others, ſo various and whimſical, that it would open a boundleſs field for ſpeculation, if we attempted to diſcover their cauſes. But this is no part of my deſign. My intention is, to relate the peculiar manners and cuſtoms of the ſeveral nations whoſe hiſtory falls within the compaſs of this work, and to repreſent them ſuch as they have been, in the ſeveral periods into which it is divided.

The manners of a nation, without doubt, is the moſt intereſting part of its hiſtory. We cannot give a fair repreſentation of theſe, without carefully ſtudying what has been in each period its prevailing genius and moral character, that is, what have been its ſentiments of virtue and vice, of the point of honour, of the rites and ceremonies of civil life. Their domeſtic life, their manner of converſing together in ſociety,

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* Theſe cuſtoms, common to all ages and nations, confirm what Moſes has ſaid of the creation of the world, and ſtrongly prove that all its inhabitants are deſcended from one and the ſame family.

the forms of their politeneſs, their public and private amuſements, muſt alſo be deſcribed. In a word, it will be neceſſary to examine, in every period, in what degree the arts adminiſtered to the neceſſities, the recreations, and the luxuries of life.

But it is impoſſible to give a proper deſcription of the manners of a people without having had a very intimate perſonal acquaintance with them, or having carefully ſtudied ſome faithful circumſtantial hiſtories of them. This will ſhow, how impoſſible it is for us at preſent to treat of the manners of the greateſt part of ancient nations with exactneſs. Let us endeavour, however, to draw a ſlight ſketch, and give ſome imperfect ideas of the manners and cuſtoms of thoſe ages which are the ſubject of this firſt part of our work.

We may perceive, in general, great ſimplicity, little pomp, parade, and ceremony in the manners of the moſt ancient nations. Some writers have beſtowed prodigious praiſes on this ſimplicity of life, and on that account extolled theſe primitive ages above all others. This is not the proper place to diſcuſs this queſtion, which ſhall be examined by and by. We ſhall only obſerve in paſſing, that it is eaſy to penetrate into the cauſes of this boaſted plainneſs and ſimplicity. The manners of a people always bear a proportion to the progreſs they have made in the arts and ſciences. Their way of living in the primitive ages, for this reaſon, muſt neceſſarily have been very ſimple, or rather rude, through their ignorance of thoſe arts which procure the comforts and conveniencies of life. They could then form no idea of a ſumptuous luxurious life; and were ſtrangers to all delicacy, elegance, and refinement of manners. How could they think of gratifying taſtes which then had no exiſtence? A reliſh for the conveniencies and elegancies of life, is the fruit of time, and the conſequence of increaſing knowledge. It was experience which introduced choice and variety into life, experience which gave birth to faſhion, which has extended its empire over all ages and nations. If the firſt men, therefore, led a parſimonious and ſimple life, it was not from choice and principle, but from neceſſity, and their ignorance of one more agreeable. For no ſooner did the ſeveral nations become acquainted with the arts of elegance and refinement, than they made all poſſible haſte to enjoy them. The facts we are going to mention will, we hope, put all this beyond doubt.

CHAP. I.

Of Aſia.

WE have not ſufficient knowledge of the events which happened in the greateſt part of Aſia, in the ages we are now examining, to enable us to give an exact and full account of the manners of its firſt inhabitants. The holy ſcriptures are the only books which furniſh us with any materials on this ſubject, and theſe relate only to the people of Paleſtine, and the adjacent countries. We muſt, therefore, expect much drineſs and ſterility in this firſt period. We muſt even come down to the age of Abraham, before we can diſcover the fainteſt traces of the manners and cuſtoms which prevailed in the common affairs of life. We ſhall ſay nothing at all of the ideas they then had of morality, and the duties of ſociety. We are totally ignorant of their ſentiments on theſe important ſubjects.

I have already ſaid, that ſimplicity was the diſtinguiſhing characteriſtic of theſe firſt ages. Their food is an evident proof of this. We find no mention of ſauces, ragouts, or even of any kind of game or veniſon, in the deſcription given us in ſcripture of the entertainment provided by Abraham for the three angels who appeared to him in the plains of Mamre. This patriarch ſerved up to them, a calf roaſted, or rather broiled, milk, butter, new bread baked in the aſhes[b]. This was the whole feaſt; a proof that their entertainments in theſe ages were more ſolid than delicate. Abraham, no doubt, deſigned to treat his gueſts in the beſt manner he could; and we muſt remember, that this patriarch was very rich in gold and ſilver, flocks and ſlaves [c]. We may conſider this entertainment provided for the three angels, as the model of a magnificent feaſt, and from thence judge, what was the manner of entertaining ſplendidly in theſe times.

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[b] Gen. c. 18. v. 6. &c.

We might be inclined to think alſo, that the firſt men muſt have been prodigious eaters. Is it not aſtoniſhing to ſee a whole calf, and almoſt fifty-ſix pound of bread, ſerved up to three perſons * ? Rebecca dreſſed for Iſaac, two kids for one meal [d]. This circumſtance is the more remarkable, as in warm countries, ſuch as Paleſtine, men uſe much leſs food than in colder or more temperate climates. I ſhould rather incline to attribute this cuſtom of ſerving up ſuch enormous quantities of meat, to the genius and manners of theſe times, when magnificence, it is probable, conſiſted in preſenting their gueſts with much more food than they could poſſibly uſe †.

As ſocieties became more civilized, and enjoyed greater plenty and variety, a taſte for elegance and good living was introduced. This appears from the ſpeech of Iſaac to Eſau, directing him how to render himſelf worthy of his benediction: "Go out to the field," ſaid he, "and take me ſome veniſon; "and make me ſavoury meat, ſuch as I love [e]." The ſequel of this ſtory proves ſtill more clearly, that the art of dreſſing meat in various ways was then known and practiſed. Rebecca, who overheard this diſcourſe, and had a mind to ſubſtitute Jacob in the place of Eſau, commanded him to bring her two of the beſt kids: theſe ſhe dreſſed in ſuch a manner, that Iſaac was deceived, and took them for veniſon [f]. The ſcripture adds, that Jacob preſented wine to his father, and that he drank it [g].

Moſes does not give us any further information on this ſubject, with reſpect to the patriarchs. We may preſume, that the luxury of the table was not carried much farther among other nations. We find no mention of eggs, or fowls, among the people of theſe primitive times, whoſe hiſtory we are acquainted with; and conſequently it is highly probable they did not uſe them.

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[c] Gen. c. 24. v. 35.

* I follow the calculation of M Fleury, Mœurs des Iſraelites, § 4. p. 25.

[d] Gen. c. 27. v. 9.

† To this day, one part of the magnificence of entertainments conſiſts in great abundance in all countries.

[e] Gen. c. 27. v. 3. 4. [f] Ibid. v. 9. & 25. [g] Ibid.

We cannot ſay the ſame of fruits, pulſe, and herbs. The patriarchs, according to all appearance, eat of theſe. Fruits are a kind of food ſo natural, that it muſt have been known from the very beginning. Further, among the preſents which Jacob commanded his ſons to carry to Joſeph, to gain his favour, the ſcripture mentions nuts and almonds [h]; a proof that theſe fruits were then both uſed, and much prized. Honey is there mentioned as one of the preſents they were to offer.

As to pulſe, all interpreters, and the greateſt part of commentators, agree, that the meat for which Eſau ſold his birthright, was a diſh of lentils [i]. Men could not long be ignorant of the arts of cultivating and dreſſing this kind of food, as I think I have ſufficiently proved in the preceding books [k].

As to fiſh, there is no mention of it in Geneſis. We cannot however, conclude, merely from the ſilence of Moſes, that the people of Paleſtine did not then uſe it. For Sanchoniatho, who is undoubtedly one of the moſt ancient writers, expreſsly names fiſhing among the firſt inventions which people aſcribed to their heroes [l].

We ſee, that, in the days of Abraham, it was the common practice to make two meals a-day. This patriarch entertained the angels towards noon [m]; and Lot entertained them at ſupper, in the evening of the ſame day [n]. It is probable they then eat in a ſitting poſture. The cuſtom of ſtretching themſelves upon beds at their meals, I imagine, was not ſo ſoon introduced.

The utenſils for houſe-keeping, ſuch as plates, pots, and cups, would be originally of earth or wood. As mankind improved in arts and policy, their natural taſte for refinement and magnificence would begin to ſhow itſelf. The diſcovery of metallurgy would enable them to gratify this taſte. Veſſels of gold and ſilver would ſoon be ſubſtituted in the place of thoſe of earth and wood, with which they had been obliged to take up at firſt. This piece of luxury was exceeding ancient. We read in Geneſis, that Eliezer made Rebecca a preſent of veſſels of gold and ſilver [o].

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[h] Gen. c. 43. v. 11.

[i] Ibid. c. 25. v. 34.

[k] *Supra.* b. 2. c. 1. art. 5. p. 118.

[l] Apud Euſeb. præp. evang. l. 1. c. 9. p. 35. B.

[m] Gen. c. 18. v. 1.

[n] Ibid. c. 19. v. 3. 4.

It is probable, that men were a long time without the uſe of ſpoons and forks. There are ſtill many nations who do not uſe them. Their fingers, and two little ſticks made on purpoſe, ſupply their place. Neither did they, as I imagine, make uſe of plates originally. They eat upon the bark or large leaves of trees, as is ſtill done in ſeveral countries [p]. The ancients had no knives. A kind of poniard which they always wore at their girdles, ſerved them in their ſtead [q].

They knew nothing of the ſecret of keeping their meat ſome time before they eat it. When Abraham entertained the angels, he brought a calf from the field, and commanded it to be killed and dreſſed immediately [r]. When Iſaac deſired to eat veniſon, he ordered Eſau to take his bow and arrows, and as ſoon as he returned, to prepare for him a part of what he had taken [ſ]. Rebecca, to deceive him, inſtantly killed two kids, dreſſed and ſerved them up [t]. I ſhall have occaſion hereafter to mention this practice, which ſtrongly repreſents the rudeneſs of theſe times, when I come to ſpeak of the manners of the ancient inhabitants of Greece.

The plainneſs of their dreſs in theſe primitive ages, would correſpond to that of their food. They were unacquainted with the art of making their garments graceful and commodious. They took a piece of cloth, longer than it was broad, and covered themſelves with it, or rather wrapt themſelves in it. For originally they had no contrivances to keep their garments faſt about them, but by the different turns of the cloth round the body. This is the caſe with ſeveral nations to this day [u],

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[o] Gen. c. 24. v. 23.

[p] Hiſt. gen. des voyages, t. 8. p. 93.; Marc Paul, l. 3. c. 30.; Voyage de Schouten, t. 1. p. 378. & 432.

[q] See part 2. b. 6. c. 3.

[r] Gen. c. 18. v. 7.

[ſ] Chap. 27. v. 3. 4.

[t] Ibid. v. 9.

[u] See Chardin, t. 9. p. 59. 60.; Voyage de Schouten, t. 1. p. 279. 414. 463.; Laet, deſcript. des Ind. occident. l. 6. c. 6. p. 201.; Geograph. Nub. p. 11.

By degrees, garments of a more convenient ſhape, and better adapted to cover the body, were invented. It appears, that the dreſs of the patriarchs conſiſted of a tunic with large ſleeves, without any plaits, and of a kind of mantle of one ſingle piece[x]. They wore the tunic next the body, and threw the mantle over it, which was probably faſtened with a claſp. The exceſſive heat of the greateſt part of Aſia, is the reaſon that its inhabitants have never given themſelves much trouble about covering their legs and arms. Their ſhoes were only a kind of ſandals, tied on with thongs. Theſe were uſed in the days of Abraham[y].

It appears then, that the make of their garments was extremely ſimple. They required but little cutting or ſewing *. The faſhions did not change then, and do not change to this day in the Levant. As this kind of garments fitted almoſt any ſize, the rich had always great numbers of them in ſtore, of which they made preſents. This cuſtom prevailed in the age of Abraham. Moſes mentions raiment among the preſents which Eliezer made to the whole family of Rebecca[z]. This is ſtill practiſed in the eaſt in our days.

Even in the patriarchal age, they ſtudied ſome degree of luxury and magnificence in dreſs. Rebecca, the better to diſguiſe Jacob, made him put on Eſau's garments, which ſhe kept with care. Moſes ſays, they were very beautiful, but gives no deſcription of them[a]. Jacob, who tenderly loved Joſeph, gave him a conſpicuous robe, which excited the envy of his other children[b]. It is ſomewhat difficult to determine wherein the ſuperior excellence of this robe conſiſted. Interpreters and commentators are not agreed about the meaning of the Hebrew word, which Moſes uſes in deſcribing it. I imagine, that the magnificence of dreſs then conſiſted in the fineneſs of the ſtuffs, the beauty and variety of colours. The Arabians, to this day, uſe garments of this kind[c].

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[x] Gen. c. 37. v. 31. c. 9. v. 23. c. 49. v. 11.

[y] Ibid. c. 14. v. 23.

* Such is the Arabian dreſs. Mém. de Trévoux, Septem. 1705, p. 1536.

[z] Gen. c. 24. v. 53. [a] Ibid. c. 27. v. 15. [b] Ibid. c. 37. v. 3. 4.

[c] Anciennes relations des Indes et de la Chine, p. 12.

The adorning of the perſon was an early ſtudy. The deſire of pleaſing ſoon taught the arts of ſetting off the gifts of nature by the ornaments of dreſs. The moſt ſavage barbarians have a kind of ornaments ſuited to the rudeneſs of their manners. In theſe remote ages, they were not unacquainted with the ornamental parts of dreſs. The ſcripture tells us, that Eliezer made Rebecca preſents of ear-rings, and bracelets of gold for her hands [d]. Theſe ornaments were not even confined to the fair ſex. Men as well as women wore ear-rings, bracelets, and rings [e]. This cuſtom ſtill continues among ſeveral of the eaſtern nations.

It will be proper to obſerve on this ſubject, that, in the times we are now ſpeaking of, they did not wear their rings on their fingers, as has been ſince the cuſtom, but upon the backs of their hands, either tied on with a ſtring, or made ſo large that they could put their hand into them. This is evident from the expreſſions Moſes uſes as often as he ſpeaks of rings *.

We know not whether the people of Aſia had any covering for the head in the patriarchal age. We ſee only that on ſome occaſions the women uſed veils [f]. But it is impoſſible to give any particular deſcription of their head-dreſſes, or even of their dreſs in general. The account I have given of the ſhape and faſhion of their garments in theſe remote times, is very imperfect, becauſe no monuments of them are remaining, and without the aſſiſtance of ſome repreſentation we cannot form a clear idea of them.

We are at the ſame loſs with regard to their manner of lodging. We know neither the outward form of their houſes, nor the inward diſtribution of their apartments in remote antiquity; whether they were divided into different rooms, or how they dwelt in them. In general, we may imagine, that their houſes were not very commodious. It is certain for one thing, that the ancients had no chimneys. They warmed themſelves with pans of char-coal [g].

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[d] Gen. c. 24. v. 47.

[e] Ibid. c. 35. v. 4. c. 38. v. 18.

* See Gen. c. 24. v. 47. et c. 41. v. 41. 42. where it is ſaid, that Pharaoh took his ring from his hand, מעל ידו *meal jado*, and that he put it on Joſeph's hand על יד *al-iad Joſeph*. This is the more concluſive, that there is a Hebrew word for fingers. See F. Calmet *ad* Exod. c. 13. v. 9.

[f] Gen. c. 24. v. 65. c. 38. v. 14. 15.

If we have hardly any knowledge of the houſes of remote antiquity, we have ſtill leſs of their furniture. We know not how the ancients ſat, whether upon ſeats, cuſhions, carpets, mats, or ſkins. I ſhould incline to think, that, in the patriarchal ages, they had no ſuch thing as ſeats properly ſo called. They make no uſe of this kind of furniture in the eaſt to this day, but ſit upon carpets or cuſhions. It is probable they did the ſame in theſe remote times.

As to their beds, we can ſay nothing of them but from conjecture. Though they are mentioned in Geneſis, no deſcription is given how they were made [h]. We have reaſon to believe, that they were only a kind of couches without hangings or curtains. Afterwards they added a light pavilion over them, adorned with fine ſtuffs. But this was greatly poſterior to the ages we are now conſidering.

It would be long, I imagine, before they invented the arts of ornamenting the inſides of their apartments. Tapeſtry is not an invention of the firſt ages, and we may ſay the ſame of gilding and painting. We cannot ſpeak ſo poſitively of wainſcotting, and other ornaments of joiners work. The art of covering the inſides of houſes with wood very neatly wrought, is of great antiquity in Aſia. It may poſſibly have had its origin in the ages which are the ſubject of this firſt part of our work.

Let us next examine the deportment of the people we are now ſpeaking of, in the ordinary courſe of civil life, and collect together in one point of view, the few particulars which have been handed down to us on that ſubject.

It is certain, that, from the firſt ages, the people of Paleſtine and the adjacent countries had pretty juſt ideas of politeneſs, and of thoſe mutual regards which ſerve to cement and ſweeten human ſociety. They ſaluted one another reſpectfully, by bending the body very low. We ſee too, that on ſome occaſions they embraced. The hiſtory of the patriarchs furniſhes us ſeveral examples of theſe cuſtoms[i].

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[g] Jerem. c. 36. v. 22. 23.

[h] Chap. 48. v. 2. c. 49. v. 32.

They paid particular reſpect to ſtrangers and travellers; not only inviting them into their houſes, but preſenting them with every thing they wanted. They endeavoured to load them with civilities, to prevent their requeſts, and give them the beſt of every thing they had[k]. As the ancients uſed only ſandals, their feet in travelling were covered with clay or duſt: for this reaſon, the firſt office of hoſpitality they performed to thoſe they invited into their houſes, was to preſent them with water to waſh their feet. We ſee in ſcripture, that the patriarchs never neglected this piece of politeneſs[l]. When the maſter of the houſe deſigned to pay diſtinguiſhing honours to his gueſts, he waited upon them himſelf at table. It was in this manner Abraham treated the three angels who appeared to him in the plains of Mamre[m]. Another piece of politeneſs and reſpect which was then paid to ſtrangers, was, to attend them ſome part of the way at their departure with great ceremony. Laban, among other things, reproaches Jacob for this, that, by his precipitate departure, he had prevented him from ſending him away with ſongs of joy, and ſounds of muſic[n].

They obſerved ſeveral other rites of decency and good manners in theſe firſt ages. For example, it was not then the cuſtom for the women to ſit at table with the men. Sarah did not appear at the feaſt which Abraham gave the three angels[o]. Rebecca was not preſent at the entertainment her family made for Eliezer, when he came to demand her in marriage[p]. Beſides, the mens apartments were ſeparate from thoſe of the women[q], who never appeared in public without their veils[r]. All theſe cuſtoms ſtill continue in the eaſt.

It was then the cuſtom alſo, for perſons of diſtinction to carry a ſtaff or baton of a particular form; the ſame which

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[i] Gen. c. 18. v. 2. c. 19. v. 1. c. 29. v. 13.

[k] Ibid. c. 18 v. 7.

[l] Ibid. c. 18. v. 4. c. 19. v. 2. c. 24. v. 32.

[m] Ibid. c. 18. v. 8.

[n] Ibid. c. 31. v. 27.

[o] Ibid. c. 18. v. 9.

[p] Ibid. c. 24. v. 57.

[q] Ibid. v. 28. & 67. c. 31. v. 33.

[r] Gen. c. 20. v. 16. c. 24. v. 65. c. 38. v. 14. 15.

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we call a ſceptre from the Greek, and which in latter ages has been the peculiar ornament of kings and ſovereigns. But originally the uſe of it was much more general, and in ancient times every perſon of diſtinction bore a ſceptre [s]. This cuſtom is very plainly pointed out in ſcripture, and continued for many ages [t]. I ſhall have occaſion to ſpeak of it more fully in the ſecond part of this work.

In the ages we are now examining, it was not eſteemed indecent for the miſtreſs of the family, to dreſs part of the proviſions. We ſee that Sarah baked the bread neceſſary for the entertainment which Abraham gave the angels [u]. Rebecca prepared a diſh for Iſaac, compoſed of two kids [x]. Nay more, we ſee the children of the patriarchs employed in ſervile offices, which at preſent would appear extremely low. Jacob kept the flocks of Laban his father-in-law [y]; and after this patriarch had returned into his own country, his children tended his flocks [z]. Even the daughters were not exempted from theſe laborious offices. Rebecca went to bring water from a conſiderable diſtance, and carried a pitcher upon her ſhoulders [a]. Rachel drove her father's flocks [b]. The manners of the Greeks in the heroic ages, will preſent us with a faithful picture of theſe primitive times. We muſt aſcribe all theſe cuſtoms to that neceſſity which mankind were in originally, of every one's doing almoſt every thing for himſelf. The preſent practices of the ſavages is a convincing proof of this.

The cuſtom of expreſſing grief, for the death of hear relations, by external marks of mourning, has obtained in the moſt diſtant ages. The ſcripture takes notice, that Abraham performed the rites of mourning, on the death of Sarah [c], and that Judah did not appear in public for ſome time after his

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After all we muſt confeſs, that we do not know diſtinctly what was then the ordinary uſe of the veil. We may even perceive ſome ſort of oppoſition between the cuſtoms mentioned in thoſe paſſages I have quoted. It would ſeem from thence probable, that women did not wear their veils every time they appeared in public.

[s] Herod. l. 1. n. 65.; Strabo. l. 16. p. 1129 & 1130.

[t] Gen. c. 38. v. 18.

[u] Ibid. c. 18. v. 6.

[x] Ibid. c. 27. v. 9.

[y] Ibid. c. 29. v. 18.

[z] Ibid. c. 37. v. 12.

[a] Ibid. c. 24. v. 15.

[b] Ibid. c. 29. v. 9.

[c] Ibid. c. 23. v. 3.

wife died [d]. But we do not know what the people of the eaſt in theſe ages wore for mourning, nor how long it continued. It is certain that they changed their dreſs, and that there was a particular habit for widows. This is evident from the hiſtory of Tamar. When ſhe deſigned to impoſe upon Judah, and make him fall into the ſnare which ſhe had laid for him, ſhe took care, ſays Moſes, to put off her widow's garments, and put on others [e]. We do not know certainly of what kind the widow's garments then were, we can only gueſs at it. It appears, firſt, that widows did not wear veils; for Tamar put on one to diſguiſe herſelf [f]. I preſume too, that the faſhion of theſe mourning-garments was different from that of their ordinary dreſs. When Jacob heard of the death of Joſeph, he tore his garments, and put on hair-cloth [g], or rather ſackcloth, according to the Hebrew text, and Septuagint verſion. They probably gave the name of ſacks to their mourning-habits, becauſe they were ſtrait and cloſe like ſacks, and no doubt of a dark and gloomy colour.

We can ſpeak only very imperfectly of the occupations, exerciſes, and amuſements of the firſt men. The keeping of flocks was, no doubt, one of their principal employments, as it was the ſource of their riches. Both ſacred and profane antiquity atteſt this with one voice. It was for this reaſon, that the ancients, when they had any affairs to tranſact, repaired to the gates of cities [h]. The inhabitants being almoſt all ſhepherds or huſbandmen,* were obliged to go out at the gates every morning, and did not return till the evening. The gate of the city, therefore, was the place of the moſt public concourſe and reſort *.

With reſpect to their pleaſures and amuſements, we ſee that men in all ages have diverted themſelves with ſinging, dancing, and playing on inſtruments of muſic. Singing ſuppoſes ſome kind of poetry; accordingly this ſublime art is one of the moſt ancient inventions. I ſhould even imagine, that poetry preceded muſic *, as muſic evidently preceded dancing. But, without determining the preference in point of antiquity, let us inquire what might be the origin of theſe two delightful and inchanting arts. We ſhall begin with poetry.

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[d] Gen. c. 38. v. 12.

[e] Ibid. c. 38. v. 14.

[f] Ibid.

[g] Ibid. c. 37. v. 34.

[h] See Gen. c. 33. v. 10. & 18. c. 34. v. 20.; Ruth, c. 4. v. 1.

* In all ages, mens way of life has determined the places of their public rendezvous. The Greeks and Romans aſſembled in the market, or the ſquare, for their occupations of commerce or of pleading. Our anceſtors aſſembled in the courts of their ſeveral barons caſtles. From whence came the courts of princes. In the Levant, where their ſovereigns are commonly ſhut up in their palaces,

A great many conjectures have been formed concerning the origin of poetry: but none of them are fully ſatisfactory, or unfold the true cauſes which formed the firſt poets. I ſhall explain what I mean. If we will content ourſelves with vague and general cauſes, it is eaſy to find the ſource of poeſy in the various affections and emotions of which the human ſoul is ſuſceptible. We ſee plainly, that the firſt truly poetical ideas muſt have been the offspring of a lively imagination, ſtrongly affected. When the mind is deeply penetrated with a lively ſentiment, it diſdains the ordinary modes of expreſſion. The familiar ſtyle will not ſatisfy; common and vulgar language would but ill expreſs the ideas with which it is raviſhed and tranſported. Then it ſeeks for daring figures, bold and lively images, ſublime and ſoaring expreſſions to paint the ſentiments it feels. It would be ſoon perceived, that among the various ſounds which form the different languages, ſome had a peculiar force and energy, ſome an agreeable ſweetneſs, while others were harſh and grating to the ear. The firſt ſtep therefore towards poetry would be to expreſs ſtrong and lively ideas in ſublime and energetic language, and to clothe the milder feelings in ſoft and ſweet expreſſions. They would then invent more ſtudied and elegant turns of phraſe, than thoſe of common ſpeech. Laſt of all, they would endeavour to give a certain cadence and number to their ſtyle and language. In this manner we may explain the mechanical

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palaces, the people aſſemble at the gates of the ſeraglio. This cuſtom of attending at the gates of eaſtern monarches, is as old as the times of the firſt kings of Perſia, as we ſee from the book of Eſther, c. 2. v. 19. 21. c. 3. v. 2. 3.

* I take the word *muſic* in its moſt enlarged ſenſe.

invention of poetry, and trace the ſteps of the human mind in its progreſs towards that invention. But when we would attempt to find out the original principle of theſe affections and emotions, which alone gave birth to poetry, and created poets, difficulties croud in upon us.

Poetry is not one of thoſe arts which are communicated by one nation to another. There never was a people who had not their own poets. This talent, therefore, ſeems to be one of thoſe which are eſſential to human nature*. Beſides, poetry is employed on ſuch an infinite variety of objects, ſo diſtant and different from one another, that it is hardly poſſible this art could have ſprung from one origin, in all the different nations which have cultivated it. Some writers, however, imagine, that the raptures and tranſports of a devout and grateful heart, on contemplating the grandeur and goodneſs of the Supreme Being, were the firſt and principal ſources of poetry. I am afraid that this opinion will not hold good, and doubt very much whether we ſhall find the origin of poetry in the ſentiments of piety and gratitude to the Creator. I have ſaid it already, and I repeat it again, that the contemplation of the admirable order and beauty of this univerſe muſt convince every reaſonable and thinking creature, of the exiſtence of one Supreme Being, the firſt cauſe and ſovereign diſpoſer of all things. But this conviction is a mature, profound, and ſerious ſentiment, not likely, in my opinion, to inſpire the firſt men with that enthuſiaſm which is the ſource of poetry. Beſides, it is poſſible, that, in the ſtate of nature, ſome might not attend to the proofs of a Divinity. We cannot doubt of this, if it be true, that there are ſtill ſome nations who have no idea of religious worſhip. Theſe nations, notwithſtanding, have their poets[i].

It may perhaps be imagined, that poetry was the child of love. This paſſion, is indeed, capable of heating the imagination, and inſpiring the ſoul with that kind of intoxication which produces poets. But, in all appearance, the firſt men were too rude and brutal, to feel thoſe tender and delicate emotions to which poetry in after ages owed its greateſt beauties.

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* By poetry here I underſtand poetical ideas and expreſſions, rather than the artificial mechaniſm of verſes.

[i] Hiſt. des iſles Marianes par le P. le Gobien, l. 2. p. 63. 64.; Laet, deſcript. des Ind. Occident. l. 2. c. 16. p. 56. 57.; Hiſt. nat. de l'Iſlande, t. 2. p. 228. 229. 232. 254.

If laying aſide conjectures, we conſult hiſtory concerning the origin of poetry, it can give us no certain light. There we find only, that, in the moſt diſtant ages, poetry was employed by all nations, in preſerving the remembrance of great and memorable events [k]. This fact, which is indiſputable, would lead us to aſſign an origin to the firſt poetical productions, very different from any that has yet been thought of. May we not then ſuſpect, that this kind of language owes its birth to ſelf-love, which in all ages, and in all countries, has been for ever ſtudying how to ſet off and magnify every thing which might flatter its own vanity? It will not ſcruple, for this purpoſe, to employ extravagant exaggerations, hyperbolical figures, big words, and ſwelling epithets. It will ſtrain, if we may ſo ſpeak, to aggrandiſe the objects by the energy of expreſſions, boldneſs of figures, and abuſe of metaphors. The ſongs of the ſavages, which we muſt conſider as a kind of poetry, contain nothing but the praiſes and exploits of their own nation, which they always exaggerate as much as poſſible. The inhabitants of the Marian iſlands, who may be ranked among the moſt ignorant and ſavage people, believed themſelves, before the arrival of the Europeans, to be the only nation in the world. The fictions of their poets confirmed them in this ridiculous prejudice. They were charmed with theſe abſurd fables, which flattered their pride, the predominant paſſion of theſe barbarians [l]. It is probable, therefore, that, in the firſt ages, ſome inventive geniuſes, inſtead of relating facts with plainneſs and ſimplicity, ſtudied to compoſe their narrations in a language more ſingular and ſublime. Theſe compoſitions would charm their countrymen, becauſe they flattered their vanity and ſelf-love. Cuſtom would conſecrate this practice. In this manner poetry was inſenſibly invented, and in a little time it came to be uſed in all ſubjects, with which men were ſtrongly affected.

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[k] *Supra*, b. 2. c. 6. p. 172.

[l] Hiſt des iſles Marianes par le P. le Gobien, l. 1. p. 49. 63. 64.

Without having recourſe to ſelf-love, we may perhaps account for the origin of poetry, from thoſe efforts which men would make to expreſs in forcible and energetic terms, ſuch events as had made lively impreſſions on their imaginations, or left deep traces on their memories. Poſſibly we may find the ſources of this art in thoſe unutterable tranſports which men feel in eſcaping from any imminent and dreadful danger. On ſuch occaſions, their joy burſts forth, and no expreſſions are too ſtrong or bold to paint their raptures.

Gratitude too may perhaps have contributed to form and cheriſh the ſublime uncommon ſtrains of poetry. We often want words, and are obliged to ſtretch and fatigue the imagination, to find language to expreſs our gratitude, for ſome ſignal benefit, and paint the ſentiments of eſteem and love we feel for a generous benefactor. The moſt ancient poem now extant, the ſong of Moſes after the paſſage of the Red ſea, ſeems to flow from all theſe ſources [m]. It was equally deſigned to preſerve the memory of that event ſo happy and honourable to the Jewiſh nation, and to render thanks to God, for the ſignal protection afforded to his people on that occaſion. The reſult of all theſe reflections is this, that we can affirm nothing poſitively concerning the true origin of poetry; and that many reaſons forbid us to imagine, that it had one common origin in all the different nations of the world.

With reſpect to muſic, it may be ſaid, that ſinging is natural to man. All the world, even the moſt barbarous and ſavage nations, ſing. The difficulty was, to reduce the various modifications of the voice into regular and harmonious ſounds. It is commonly imagined, that the variety and ſweetneſs of the ſinging of birds ſerved as a model to the firſt inventors of muſic, and that this is the more probable, as men are ſo much inclined to imitation. They would then endeavour to form with the voice, various inflections which might have ſome ſort of connection and coherency. It would be eaſy to arrange words to theſe ſounds. But theſe firſt eſſays would be but faint imitations of that endleſs variety in the warbling of birds. To approach ſtill nearer this, it was neceſſary to invent ſome methods, to make up for the imperfection of our organs. To this end they borrowed the aſſiſtance of certain bodies, naturally ſonorous. They then ſtudied the art of making them ſound properly, and produce various and harmonious modulations. In this manner, by many ſucceſſive trials, the firſt men invented wind and ſtringed inſtruments of muſic.

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[m] Exod. c. 15.

But whatever become of theſe conjectures, which I confeſs are but little ſatisfactory, it is certain, that the invention of ſinging, and inſtrumental muſic, is extremly ancient. We have juſt heard, that in the days of Laban it was an eſtabliſhed cuſtom, to attend ſtrangers at their departure with ſongs of joy, and the muſic of inſtruments. But it is particularly worthy of obſervation, that ſongs are of all countries, and of all ages. The moſt barbarous and ſavage nations, as I have already ſaid, have ſome idea of ſinging. In our article on the origin of writing, we have ſeen that all the nations we know any thing of, originally preſerved the remembrance of hiſtorical events in a kind of poems, which they ſung [n]. Theſe ſongs which were handed down from father to ſon, ſupplied the place of books and hiſtories.

I have already offered ſome conjectures on the invention of wind-inſtruments, to which I may refer the reader [o]. With regard to ſtringed inſtruments, I doubt if they were invented ſo early as the ages we are now examining. It was long before any other inſtruments were known but the pipe, the flute, the trumpet, and a kind of kettle-drum, called in ſcripture *tympanum*. The outſide of it was of copper, of an oblong figure, and covered with ſkin only at one end. On this they beat with drumſticks, and with the hand [p].

I imagine I may apply what I have ſaid of poetry and muſic to dancing. The antiquity and univerſality of this diverſion, is equally atteſted by all writers. There is no people who have not had their peculiar dances. This cuſtom is found among the moſt barbarous and uncivilized nations. We may add, that anciently the dance made a part of the public ceremonies of religious worſhip. I ſhall not enlarge on the origin and the date of a diverſion ſo natural to man. The body always obeys the impreſſions of the mind, and ſhews its feelings by its motions, geſtures, and attitudes. There was nothing further to be done, but to regulate the different movements of the body, by ſubjecting them to a certain regular and meaſured cadence. This is an art which would be ſoon and eaſily invented.

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[n] *Supra*, b. 2. c. 6. p. 162.
[o] *Supra*, b. 5. p. 305.
[p] Calmet, ad Geneſ. c. 31. v. 27.

Poetry, muſic, and dancing, were for many ages the chief, if not the only amuſements of ancient nations. To theſe we may join feaſting, which has been a cuſtom in all times and countries. From the firſt ages there were ſome particular occaſions for entertainments of magnificence and feſtivity. The ſcripture ſays [q], that Abraham made a great feaſt the day that Iſaac was weaned. Laban invited a great number of his friends to a feaſt, at the marriage of his daughter to Jacob [r].

I do not know whether we ought to reckon hunting among the amuſements of the firſt ages. This exerciſe is indeed at preſent purſued as a diverſion, but it was not ſo in theſe early times. Hunting was then rather a ſerious occupation, than an amuſement. The earth being laid waſte by the deluge, a great part of it remained for a long time uninhabited. Wild beaſts multiplied, and endangered not only the lives of cattle, but alſo of men. The firſt colonies found themſelves under a neceſſity of waging perpetual war with thoſe fierce enemies. It is for this reaſon, that the firſt founders of empires are repreſented as mighty hunters. This talent was then as valuable as it is now indifferent. They went to the field, not from inclination, but neceſſity, and, as I am ſtrongly inclined to think, made it ſomething more than an amuſement *.

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[q] Gen. c. 21. v. 8. [r] Ibid. c. 29. v. 22.

* The Lord ſays to Moſes, ſpeaking of the Canaanites: "I will not drive "them out from before thee in one year, leſt the land become deſolate, and "the beaſts of the field multiply againſt thee," Exod. c. 23. v. 29.

Moſes tells the Iſraelites in Deuteronomy, that God would not deſtroy the Canaanites, but by little and little, leſt the wild beaſts of the field ſhould riſe up againſt them. Chap. 7. v. 22.

Notwithſtanding that ſimplicity of manners, which is commonly aſcribed to theſe primitive ages, I have already obſerved, that luxury was not unknown to ſeveral Aſiatic nations in the days of Abraham. They had different kinds of jewels, and veſſels of gold and ſilver. In Iſaac's time, we find mention, not only of precious, but of perfumed garments. Such were thoſe of Eſau, which Rebecca made Jacob put on[r]. The uſe of perfumes and odours was therefore introduced among the people of the eaſt, in the moſt diſtant ages. From thence we may preſume, that they knew other arts of luxury, which Moſes had no opportunity of mentioning. Thus it appears, that the manners of theſe nations were not then quite ſo ſimple as ſome would endeavour to perſuade us.

We may remark further, that chaſtity does not ſeem to have been their favourite virtue. Not to ſpeak of thoſe abominations which drew down the wrath of heaven on Sodom and Gomorrah, we ſee that there were then common women, who proſtituted themſelves to all the world for hire. The adventure of Judah, and Tamar his daughter-in-law, is a ſufficient proof of this. From thence we ſee, that Tamar, the better to deceive Judah, poſted herſelf in an open place, on the highway, by which he was to paſs. This place, ſays Moſes, and her dreſs and attitude, perſuaded Judah that ſhe was a harlot; they ſtruck a bargain in a few words; he promiſed her a kid, and gave pledges for the performance of his word[t]. The anſwer which the inhabitants of the place made to the ſervant Judah ſent to carry her the price of her favours, ſhews plainly that ſuch kind of adventures were then very common and frequent: "We have ſeen," ſay they, "no harlot in this place[u]." There muſt then have been a conſiderable number of ſuch proſtitutes, and they muſt have known them when they ſaw them, by certain marks. We are, beſides, informed by Sanchoniatho, that corruption of manners was carried to a great height in theſe primitive times[x].

I ſhall not enlarge any further at preſent on the manners of the firſt inhabitants of Aſia. I ſhall have occaſion to reſume this ſubject in a diſtinct article, which will contain ſome general reflections on ſeveral hiſtorical facts relating to the predominant character of theſe primitive ages. It is now time to ſpeak of the Egyptians.

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[r] Gen. c. 27. v. 27.

[t] Ibid. c 38. v. 14. 15.

[u] Gen. c. 38. v. 21.

[x] Apud Euſeb. præp. evang. l. 1. c. 10. p. 34 35.

C H A P. II.

Of Egypt.

THE manners of the Egyptians were very early formed. We find the greateſt part of the cuſtoms ſpoke of by profane hiſtorians, were common at the time Joſeph was carried into Egypt. From whence we may conclude, that the manners of the Egyptians were then ſuch as Herodotus, Diodorus, and other authors repreſent them. This is the more probable, as, according to the teſtimony of all antiquity, this nation diſcovered much conſtancy in their principles, and a ſingular attachment to their manners and cuſtoms [y].

To characterize, in a few words, the manners of the Egyptians, I ſhall borrow the expreſſions of Herodotus. "As "Egypt," ſays that author, "is ſituated in a climate and wa-"tered by a river of a different nature from all other climates "and rivers, ſo the manners and cuſtoms of its inhabitants are "different from thoſe of other nations [z]." Herodotus is not ſingular in this opinion. The Egyptians ſeem to have attracted the attention of the writers of antiquity in general, as much by the ſingularity of their cuſtoms, as by the merit of their diſcoveries. Let us judge of this from facts.

Wheat has been eſteemed in all ages, and by all nations, the moſt proper food for man. In Egypt it was a reproach to uſe it. Their bread was made of a kind of grain, which Herodotus calls *olyra* [a], and which I imagine was rice [b]. Beans were alſo proſcribed by the Egyptians; they neither ſowed, nor eat them [c]. It was likewiſe a law obſerved by the whole nation, never to eat the head of any animal [d]. Beſides, there were great differences among the Egyptians, and little uniformity, as to their daily and common food. In ſome provinces it was unlawful to kill ſheep [e], and they only eat goats. In other provinces it was the reverſe. They were commanded by a general law to abſtain from cow's fleſh [f]. Swine were conſidered as impure animals, and whoever touched one of them, though but ſlightly, and by accident, was obliged immediately to waſh himſelf and his cloaths in the river [g]. They were, however, permitted to ſacrifice ſwine to Bacchus and the moon; but care was to be taken, that it was at the time of the full moon. Then they were permitted even to eat them, for that one day only [h].

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[y] See part 3. b. 1. c. 4. p. 24.

[z] L. 2. n. 35.

[a] Ibid. n. 36.

[b] See Plin. l. 18. ſect. 15. p. 108.

The Egyptians eat fiſh [i], obſerving nearly the ſame reſtrictions with thoſe I have juſt mentioned. In general, they touched no fiſh that wanted ſcales or ſhells [k]; and even among thoſe kinds which were allowed, they abſtained from ſome of them in one part of Egypt, while they uſed them in another [l].

The ſame may be ſaid of birds; ſome of which were reputed ſacred, and for that reaſon never touched by the Egyptians [m]. This ſuperſtition reigned in Egypt long before the days of Moſes [n]. I am of opinion, that this diſtinction between ſacred and profane animals, belonged to the firſt ages of their monarchy. Further, the Egyptians, like all other ancient nations, eat their meat as ſoon as it was killed, and allowed it no time to become tender [o].

I imagine, however, that the cuſtom of gelding animals, to render their fleſh more tender and delicate, was early known

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Bread made of rice, has been, and ſtill is uſed in ſeveral countries. See Athen. l. 2. p. 110.; Voyage de V. le Blanc, p. 80. & 103.; Hiſt. gen. des voyages, t. 4. p. 227.

[c] Herod. l. 2. n. 37. [d] Ibid. n. 39.; Plut. t. 2. p. 363. B.

[e] Herod. l. 2. n. 42. [f] Ibid. n. 41. [g] Ibid. n. 47.

[h] Ibid. [i] Numb. c. 11. v. 5.; Diod. l. 1. p. 52.

[k] Herod. l. 2. n. 72. & 77. See Athen. l. 7. c. 13. p. 299. E.

[l] Plut. t. 2. p. 353. C. [m] Herod. l. 2. n. 72. & 77.

[n] Exod. c. 8. v. 26. [o] See Gen. c. 43. v. 16.

and practiſed by that people; becauſe Moſes, whoſe intention was to wean the Iſraelites from the Egytian cuſtoms, forbids to geld any animal[p].

Beer was the common drink of a great part of Egypt[q]. There were ſeveral diſtricts where vines would not grow. Where the ſoil would permit, they planted and cultivated vines, and there they drank wine. The uſe of this liquor was very ancient among the Egyptians, as we learn from the dream of Pharaoh's chief butler. This officer dreamed, that he ſaw before him a vine loaden with ripe grapes, that he preſſed their juice into the king's cup which he held in his hand, and then preſented it to that monarch[r]. I ſhall take this opportunity to obſerve, that the common people drank out of veſſels of copper[ſ], but the rich uſed cups of gold and ſilver. The cup which Joſeph uſed was of ſilver[t].

The Egyptians were extremely ſuperſtitious in their eating and drinking. They waſhed the veſſels which they uſed, with the moſt anxious care, every day, as much, or more from ſuperſtition than from cleanlineſs[u]. They durſt not uſe any utenſil that belonged to a ſtranger, or ſo much as eat meat that had been cut by any other knife than that of an Egyptian[x]. Their alienation from ſtrangers was ſuch, that they would not ſit at the ſame table with them. When Joſeph entertained his brethren in his palace, Moſes obſerves, that they ſerved the Egyptians who had been invited to that entertainment by themſelves; for then, ſays he, it was an abomination to the Egyptians to eat at the ſame table with ſtrangers[y]. But this people, who had ſo great a prejudice and averſion to other nations, were at the ſame time ſo indelicate, that they did not ſcruple to eat with beaſts[z]. Strange effect of ſuperſtition!

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[p] Levit. c. 22. v. 24.

[q] Herod. l. 2. n. 77.; Diod. l. 1. p. 40. 41.

[r] Gen. c. 40. v. 9 &c.; Diod. l. 1. p. 82.

This deſtroys Plutarch's aſſertion, that before Pſammetichus, the kings of Egypt did not drink wine, t. 2. p. 353. B.

[ſ] Herod. l. 2. n. 37.

[t] Gen. c. 44. v. 2. & 5.

[u] Herod. l. 2. n. 77.

[x] Herod. n. 41.

[y] Gen. c. 43. v. 32.

[z] Herod. l. 2. n. 36.

There are ſome nations at this day guilty of the ſame brutality, and almoſt from the ſame motives[a].

We ſee, that, in theſe primitive times, it was the cuſtom in Egypt, to ſet before every gueſt his own particular portion. It was the maſter of the feaſt who cut the meat, and diſtributed to each his ſhare. When they had a mind to pay a peculiar honour to any one, they ſent a much larger portion to him than to the other gueſts. Joſeph, to ſhew his love to Benjamin, ſent five time times as much to him as to any of his other brethren[b]. This manner of teſtifying reſpect, was common to almoſt all ancient nations[c].

If we may believe the ancients, the Egyptians knew not how to make ragouts, nor different kinds of ſauces. Their manner of dreſſing their meat was very ſimple and uniform[d]. The Egyptians in all ages made great uſe of plants, roots, fruits, and pulſe. The teſtimony of profane hiſtorians[e] on this article, is confirmed by the complaints of the Iſraelites in the wilderneſs[f]. But they had the ſame ſuperſtitious diſtinctions among theſe, as among animals; and did not eat all kinds of them indifferently[g].

The Egyptians made two meals a-day[h]; the one at noon, and the other in the evening. They eat in a ſitting poſture[i]. Perſons of diſtinction had a very ſingular cuſtom at the concluſion of their entertainments. At their riſing from table, a man came into the dining-room, carrying a coffin, containing a wooden figure about three feet in length, which repreſented a dead body, and preſenting it to each of the gueſts,

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[a] Rec. des voyages de la compagnie des Ind. Holland. t. 3. p. 24.; Voyage d'Ovington, t. 2. p. 297.; Gemelli Careri, t. 1. p. 448.

[b] Gen. c. 43. v. 34.

[c] Diod. l. 5 p. 351. See alſo part 2. b. 6. c. 3.

[d] Herod. l. 2. n. 77.; Diod. l. 1. p. 82. 91. 100.; Athen. l. 5. c. 6. p. 191. F.

[e] Herod. l. 2. n. 92.; Diod. l. 1. p. 52. et 100.

[f] Numb. c. 11. v. 5.

[g] Diod. l. 1. p. 100.

[h] Gen c. 43. v. 16.

[i] Ibid v. 33.; Athen. l. 5. c. 6. p. 191. F.

Some ancient monuments deſcribed by Diodorus, ſeem to inſinuate that the firſt kings of Egypt eat lying on beds. l. 1. p. 59.

" Drink," ſaid he, " and take your pleaſure, for this is what " you muſt be after your death [k]."

The dreſs of the Egyptians was very ſimple. The men wore a linen tunic, ſet about with fringes which reached down to the knee. Over this they had a kind of mantle made of white wool [l]. Perſons of diſtinction wore garments of cotton [m], with coſtly chains about their necks. Pharaoh commanded Joſeph to be dreſſed in a robe of cotton, and a gold chain to be put about his neck [n]. The women had only one kind of dreſs, of which the ancients have left us no deſcription. Herodotus ſays, that the men [o] had two kinds, but does not point out wherein their difference conſiſted. This faſhion, it ſeems, was very ancient in Egypt. Moſes ſays, that Joſeph gave changes of raiment to each of his brethren [p]. The Egyptians were attentive to cleanlineſs, in my opinion, even to exceſs. They took great care to keep their garments exactly neat, and had them waſhed every time they put them on [q].

The Egyptians commonly had their heads ſhaved, and cut off their hair when they were very young [r]. But, contrary to the practice of all other nations, they let their hair grow in a time of mourning [ſ]. This cuſtom appears from the hiſtory of Joſeph. He had let his hair grow while he was in priſon. But he was ſhaved before they preſented him to Pharaoh [t], becauſe, no doubt, it was not lawful to appear at court with the external marks of mourning and diſtreſs.

After theſe facts, which are well atteſted, it muſt appear not a little ſtrange to find, that the Egyptians had the uſe of mirrors in the remoteſt ages. This, however, will be abundantly evident from obſerving how common this utenſil was among the Iſraelites in the wilderneſs. Moſes ſays, that he made the laver of braſs, of the mirrors offered by the women who watched at the door of the tabernacle [u]. This great quantity muſt have been brought from Egypt. We muſt obſerve, that then mirrors were not made of glaſs; whether it was, that they knew not the art of making glaſſes, or, at leaſt, the ſecret of foliating them. They made mirrors of all kinds of metals. Thoſe of the Egyptians, as we learn from the paſſage juſt now quoted, were made of braſs melted and poliſhed. To this day, almoſt all the mirrors of the eaſt are of metal. If we meet with a few of glaſs, they have been imported by the Europeans [x].

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[k] Herod. l. 2. n. 78.

[l] Gen. c. 39. v. 12.; Herod. l. 2. n. 37. et 81. See alſo Exod. c. 9. v. 31. Bianchini, iſtor. univ. p. 556. et 567.

[m] *Supra*, b. 2. c. 2. p. 120.

[n] Gen. c. 41. v. 42.

[o] L. 2. n. 37.

[p] Gen. c. 45. v. 22.

[q] Herod. l. 2. n. 37.

[r] Ibid. l. 3. n. 12.; Diod. l. 1, p. 21. 22.

[ſ] Herod. l. 2. 36.

[t] Gen. c. 41. v. 14.

We can ſpeak but very imperfectly of the houſes of the Egyptians. We know only, that they were exceeding high. Diodorus ſays, that, in the earlieſt ages, the houſes of private perſons in Thebes were four or five ſtories in height [y]. We can ſay nothing of their inward decorations, or outward magnificence. We cannot ſo much as form conjectures on this ſubject, as the ancients have been entirely ſilent about it. We know as little of their furniture, either as to its kinds or forms.

I am, however, perſuaded, that, in the ages we are treating of in this firſt part, there muſt have been a great deal of magnificence in Egypt. I have had ſeveral opportunities of obſerving in the preceding books, to how great a height luxury had been carried in Egypt, in the days of Joſeph. Even then they uſed jewels, veſſels of gold and ſilver, rich ſtuffs and perfumes, and were waited upon by a great number of ſlaves. Joſeph dwelt in a ſuperb palace, and had a maſter of the houſehold [z]. Perſons of diſtinction were drawn in chariots. They had various kinds of theſe, ſome of them, no doubt, very magnificent [a]. Joſeph was attended and proclaimed with great pomp. A herald went before the proceſſion, and proclaimed the occaſion of it to all the people [b]. In a word, the court of Pharaoh makes a magnificent and brilliant appearance. There we ſee a chief butler, a chief baker, a captain of the guards,

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[u] Exod. c. 38. v. 8.

[x] Chardin, t. 2. p. 279.

[y] L. 1. p. 54.

[z] Gen. c. 43. v. 16. & 19. c. 44. v. 1.

[a] Ibid. c. 41. v. 43.

[b] Ibid.

&c. [c]. The entertainment of the queens of Egypt muſt have been exceeding ſumptuous, if we judge of it from what is ſaid by Diodorus, that the whole revenue of the fiſhing of the lake Mœris was allotted for that purpoſe. This ſum, great as it was, for it amounted to a talent a-day, was only deſigned to find theſe princeſſes in robes and perfumes [d]. Beſides, it is not ſurpriſing to find ſo much magnificence among the Egyptians in ſuch ancient times. This people being bleſſed by nature with induſtry and ingenuity, ſoon carried the greateſt part of the arts to conſiderable degrees of perfection. Theſe diſcoveries enabled them to gratify their inclination for elegance and magnificence. But enough of this at preſent. Let us now proceed to ſpeak of the peculiar character and genius of the Egyptians.

Wives in Egypt had a mighty influence over the minds of their huſbands. Either from cuſtom or natural temper, they were abſolute in their houſes [e]. This aſcendant of the women over the men, is, in general, the mark of a people of mild and gentle diſpoſitions. This agrees perfectly well with the idea given us by hiſtory of the temper of the Egyptians. Beſides, they uſed a great deal of politeneſs, reſpect, and good manners, in their intercourſe with one another [f]. As they were enemies to all diſputes and quarrels, and fondly addicted to the arts and ſciences, the pacific virtues were the great objects of their love and admiration. They applied alſo to the ſtudy of politics, and the arts of government. Their laws have been much celebrated by the ancients. But all theſe good qualities were more than balanced by their greater defects and vices.

Singularity and ſuperſtition were the diſtinguiſhing characteriſtics of the Eyptians [g]. I ſaid in the beginning of this article, that they ſeem to have affected whimſical and uncommon cuſtoms. We muſt have obſerved ſome of this kind among thoſe we have juſt mentioned. This people had even cuſtoms which ſeem, in ſome ſort, ſhocking to nature, and which I do not think proper to repeat. Such as deſire to know them, may conſult Herodotus [h]. This ſingular way of thinking and acting, not only alienated the Egyptians from other nations, but muſt have occaſioned diſſenſion among themſelves, and averſions between the inhabitants of different provinces. One thing particularly which muſt have been the ſource of much diſlike to one another, was the way of life which each family had embraced. In Egypt each of the profeſſions which are neceſſary to a ſtate, had a fixed and ſettled rank. The ſon was obliged to follow the profeſſion of his father; none was permitted to raiſe himſelf from an inferior to a ſuperior claſs [i]. At the ſame time, cuſtom had annexed an idea of averſion and contempt to certain extenſive and uſeful profeſſions, which of themſelves had no tendency to excite ſuch ſentiments. That of tending flocks, which was eſteemed the moſt honourable of all profeſſions [k] by the other nations of antiquity, was held in abhorrence by the Egyptians [l]. This way of thinking prevailed in Egypt in the days of Joſeph; which obliged him to uſe ſeveral precautions, when he introduced his father and his brethren to Pharaoh [m]. Yet the Egyptians had a great many flocks [n], and conſequently there muſt have been a great many ſhepherds. Here then was a numerous and uſeful body of men rendered the object of public averſion, by capricious cuſtom. I will not ſtay at preſent to diſplay the pernicious conſequences of ſuch maxims. I ſhall have occation to inſiſt particularly on this, in the third part of this work [o].

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[c] See *ſupra*, b. 1. art. 4. p. 50.

[d] L. 1. p. 62. See alſo Athen. l. 1. p. 33. F.

[e] Diod. l. 1. p. 31.

[f] Herod. l. 2. n. 80.

[g] See Herod. l. 2. n. 35. 36. & 65.; Diod. l. 1. p. 93.

With regard to ſuperſtition, no nation in the world ever betrayed ſuch ridiculous weakneſs, both as to the objects and the forms of their worſhip. What railleries have the Egyptians been expoſed to, on account of their ſtupid veneration for ſome animals? What indeed can be ſaid for the father of a family, who, when his houſe is on fire, takes more pains to ſave his cat than to extinguiſh the flames [p]? What can we think of a ſoldier, who, returning from making war in a foreign country, loads himſelf with cats and vultures, though he often wants neceſſary bread [q]? Once more, what name can we give that ſottiſh adoration which a great part of Egypt paid the crocodile? The blindneſs of theſe infatuated wretches was ſo great, that they were tranſported with joy, when their children were devoured by that fierce creature. The mothers of theſe unhappy victims felt a ſingular ſatisfaction from theſe fatal accidents, glorying that they had produced an agreeable nouriſhment for the divinity they worſhipped [r]. The Egyptians, when reduced to the laſt extremities of want and famine, would rather eat one another, than touch one of the ſacred animals. It is even affirmed, that there have been examples of this [ſ].

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[h] L. 2. n. 35. 36.

[i] See part 3. b. 1. c. 4. p. 20.

[k] See *ſupra*, c. 1. p. 339.

[l] Gen. c. 46. v. 34.; Herod. l. 2. n. 47.

[m] Gen. c. 46. v. 34.

[n] Ibid. c. 47. v. 6. 16. 17.

[o] B. 1. c. 4. p. 22. & ſeq.

Diodorus confeſſes, that it was much eaſier to relate the horrid extravagancies of the Egyptians about their ſacred animals, than to procure belief from ſuch as had not ſeen them. They had always a certain number of them in incloſures, conſecrated to that pious uſe. Great revenues were ſet apart for their maintenance [t]. They fed them only with the choiceſt meats prepared in the moſt delicate manner poſſible. They went a-hunting, on purpoſe to procure the carnivorous birds ſuch food as was moſt agreeable to them. There were delicious baths prepared for all theſe various animals. They perfumed them, and burnt the ſweeteſt odours before them. The places where they repoſed, were ſpread with the richeſt carpets. They decked their bodies with jewels, and other coſtly ornaments. They were at prodigious pains to pair them according to their ſeveral kinds. For this purpoſe, they ſearched out the moſt beautiful females, fed and tended them with particular attention, and honoured them with the title of the concubines of the gods. In a word, they ſpared no pains, no expenſe to entertain the ſacred animals in a magnificent manner, and render their lives as agreeable as poſſible. Perſons of the higheſt rank performed theſe important functions [u].

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[p] Herod. l. 2. n. 66.

[q] Diod. l. 1. p. 95. See Athen. l. 7. c. 13. p. 299. 300.

[r] Ælian. de nat. animal. l. 10. c. 21.

[ſ] Diod. l. 1. p. 94.

[t] L. 1. p. 93.; Plut. t. 2. p. 359.

What extravagant follies did the Egyptians commit when any of the ſacred animals happened to die? They bewailed them more bitterly than they would have done their own children. The moſt zealous devotees ſometimes ruined themſelves by the expenſes of their funerals [x]. In Egypt, it was not near ſo dangerous to murder a man, as to kill a cat, an ichneumon, an ibis, or a hawk. Whoever had occaſioned the death of one of theſe animals, either by deſign or accident, if it came to be diſcovered, was ſeized upon by the people, and, after ſuffering all kinds of torments, was unavoidably torn in pieces [y]. One muſt have been conſtantly expoſed to great dangers in this country, where involuntary accidents were puniſhed in the ſame manner with premeditated crimes.

Beſides, the objects of this ſenſeleſs adoration were not the ſame over all Egypt. There was no uniformity in this reſpect. The inhabitants of Mendes, for example, worſhipped goats, and eat ſheep; while thoſe of Thebes, on the other hand, worſhipped ſheep, and fed upon goats [z]. In the ſame city, and all about the Lake Mœris, the crocodiles were worſhipped; while at Elephantine, and other places, they were killed without mercy [a]. Theſe things muſt have been perpetual ſources of hatred and diſſenſion among the inhabitants of Egypt. They were divided into a great many ſocieties, diſtinguiſhed from, and prejudiced againſt one another by their different objects and rites of worſhip. What was adored in one place, was deſpiſed in another. The Egyptians looked upon each other reciprocally as atheiſts, and enemies to religion. This enmity was fierceſt between thoſe cities whoſe gods were naturally enemies [b]. The hatred between the cities of Arſinoe and Heracleopolis muſt have been very keen. The one worſhipped the crocodile, and the other adored his mortal enemy the ichneumon [c].

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[u] Herod. l. 2. n. 65.; Diod. l. 1. p. 93. 94. 95.; Ælian. de nat. animal. l. 7. c. 9.

From the relics of this ancient ſuperſtition, the Baſhaw of Cairo delivers every day two oxen for the maintenance of the Achbobbas, a kind of bird which the Mahometans eſteem ſacred. *Voyage de Schaw, t. 2. p. 92.*

[x] Diod. l. 1. p. 95.; Herod. l. 2. n. 66. 67.

[y] Herod. l. 2. n. 65. 66.; Diod. l. 1. p. 94.

[z] Herod. l. 2. n. 42.; Strabo, l. 17. p. 1155.

[a] Herod. l. 2. n. 69. 70.; Ælian. de nat. anim. l. 10. c. 21. & 24.; Strabo, l. 17. p. 1169.; Juvenal. ſatir. 15. v. 33. &c.

I might alſo ſpeak of the worſhip which, according to ſome ancient writers, the Egyptians paid to vegetables of various kinds [d]. But this fact, I confeſs, does not appear to me well enough atteſted, to merit much attention. Herodotus, Plato, Ariſtotle, Diodorus, Strabo, in a word, all the moſt ancient writers, and the moſt worthy of credit in the affairs of Egypt, make no mention of this ſingular ſuperſtition, which was too extraordinary to have been paſſed over in ſilence. Juvenal, I think, was the firſt who upbraided the Egyptians with it, and his authority does not ſeem to me of ſufficient weight to determine this point. The ſevere humour of this ſatiriſt made him, no doubt, draw the picture much more ridiculous and odious than the original [e]. Neither is much regard to be paid to what we find in Lucian on that ſubject. We ſee plainly, that, in the paſſage where he ſpeaks of the Egyptians worſhipping onions, his intention was to turn all religion into ridicule *. With this view, Lucian might take advantage of the known character of the Egyptians for ſuperſtition, to impute to them the moſt extravagant and ridiculous object of worſhip he could think of.

We cannot tell with preciſion, what ideas the Egyptians formed of the virtues and the vices. We know that they have been accuſed by the ancients of cunning and infidelity in their dealings. In general, their reputation for probity was but very low [f]. With regard to decorum and modeſty, if we may judge from certain facts, their principles were not over ſevere or ſtrict. It was, no doubt, from the knowledge Abraham had of the character of that people, that made him pretend that Sarah was his ſiſter [g]; and the manner in which ſhe was taken from him, and carried to Pharaoh's palace, confirms this opinion [h]. This patriarch, according to the ſcripture-account, owed the good treatment he met with in Egypt, to the beauty of his wife [i]. We may add to this the adventure of Joſeph and Potiphar's wife, and that of Pheron the ſucceſſor of Seſoſtris, related by Herodotus [k] and Diodorus [l]. For though the circumſtances of that ſtory are greatly diſguiſed by fables, yet ſtill we may collect from it to what a height corruption of manners had arrived in Egypt.

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[b] See Diod. l. 1. p. 100.; Plut. t. 2. p. 380. A.

[c] Herod. l. 2. n. 69.; Diod. l. 1. p. 41. 42. 90. 98.; Ælian. de nat. animal. l. 10. c. 24.; Plut. t. 2. p. 380. B.; Juvenal. ſatir. 15. v. 32. &c.; Lucian. in Jove tragœd. n. 42. t. 2. p. 690.; Joſ. adverſ. Appion. l. 1. n. 71.

[d] Juvenal. ſatir. 15. v. 9. 10.; Lucian. in Jove tragœd. n. 42. t. 2. p. 690.

[e] *Porrum & cepe nefas violare, ac frangere morſu.*
O ſanctas gentes, quibus hæc naſcuntur in hortis
Numina! Juvenal. loco cit.

* See the whole dialogue, intitled, *Jupiter Tragœdus.*

Beſides, if we may judge of the manners of a nation by their public ceremonies, which, being deſigned to pleaſe the whole people, muſt be a faithful repreſentation of their diſpoſitions, what an opinion muſt we entertain of the decency and modeſty of the Egyptians? Let us only repreſent, in what manner they conducted themſelves in going to the celebration of the feſtival of Diana, ſeveral times a-year. This great ſolemnity was held at Bubaſte, and they crouded thither from all parts by water. Great numbers of men and women imbarked in the ſame veſſel. During the voyage, ſome of the women played upon a kind of caſtanets, and ſome of the men on flutes. The reſt accompanied them with ſinging and clapping their hands. When the veſſel paſſed near a city, it ſtopped. The women on board called to thoſe in the city, aſſaulted them with the moſt approbrious, or rather obſcene language, and were guilty of the greateſt indecencies [m]. When they arrived at Bubaſte, they celebrated the feſtival by drinking and gormandizing [n]. We are well aſſured, that all the feſtivals of the Egyptians were kept in the ſame manner. In them they committed ſuch ſhameful diſorders, that profane hiſtorians have ſeldom ventured to deſcribe them [o].

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[f] Plato. de rep. l. 4. p. 642. A.

[g] Joſ. antiq. l. 1. c. 8.; Gen. c. 12. v. 11. &c.

[h] Ibid. v. 15. [i] Ibid. v. 16. [k] L. 2. n. 111. [l] L. 1. p. 69.

[m] Herod. l. 2. n. 60.

It is very remarkable, that the cuſtom of abuſing one another on the water with ill language, has prevailed in all ages and in all countries.

[n] Id. *loco cit.*

Notwithſtanding this, jealouſy is ſaid to have made a part of the character of this people. The Egyptians, as Plutarch relates, endeavoured to confine their wives to their houſes as much as poſſible. To render them ſedentary, they uſed means ſomewhat ſimilar to thoſe practiſed by the Chineſe at preſent. The Chineſe make their women wear ſuch little ſhoes, that not being able to walk but with difficulty, they are obliged to remain in their apartments. The Egyptians allowed theirs no ſhoes at all, and thus prevented them from going much abroad [p].

When we are ſpeaking of jealouſy, it affords us a fair occaſion to conſider the origin of eunuchs. We know not in what age or country this inhuman art was invented, of mutilating men in order to make them the guardians of womens chaſtity. I ſee no foundation for what is ſaid by Ammianus Marcellinus, who attributes this invention to Semiramis [q]. I allow that this was probably thought of firſt in ſome warm country; but this barbarous expedient for ſecuring the fidelity of women, muſt have ſprung from jealouſy. As this is the predominant paſſion of the people of the eaſt, I doubt not but this practice prevailed among them early. But we cannot determine whether it was invented in Aſia or in Egypt, or in what age. We ſee only that there were eunuchs in Egypt in very diſtant times. Moſes forbids eunuchs to enter into the congregation of the Lord[r]. There muſt therefore have been eunuchs before his time. Manetho ſays, that the father of Seſoſtris was aſſaſſinated by his eunuchs [ſ]. This was near two hundred years before Moſes [t]. We know alſo that the cuſtom of gelding animals was very ancient in Egypt [u]. The one of theſe probably ſuggeſted the other. Experience having ſhewn, that an animal might ſurvive ſuch an operation, jealouſy laid hold of this expedient, to calm its ſuſpicions and diſquiets. I do not doubt, therefore, but they had eunuchs in Egypt in the ages we are now examining.

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[o] See Herod. l. 2. n. 61. See alſo Diod. l. 1. p. 96.; Strabo, l. 17. p. 1153.

[p] Plut. t. 2. p. 142. C.

This may at firſt appear contradictory to what is ſaid in the 4th book, where, ſpeaking of commerce, we ſaid, after Herodotus, that it was carried on by the women. But it is eaſy to reconcile this apparent contradiction. Plutarch probably ſpeaks only of women of diſtinction. It was probably in Egypt formerly, as it is in China at preſent, where the women of lower rank appear in the ſtreets, but not women of quality. And even though the Egyptians obliged all their women to be bare-footed, this would not prevent them from attending their ſhops.

[q] L. 14. c. 6. p. 26.

It will be ſaid perhaps, that Semiramis, whoſe debaucheries, according to the account of all hiſtorians, were very great, invented this method to avoid the diſagreeable effects of her incontinence.

It remains only to ſay a few words of their public diverſions and amuſements. Theſe conſiſted entirely in their religious feſtivals and ſolemnities, which were celebrated with ſinging, dancing, feaſting, and pompous proceſſions. Such were the public diverſions of the Egyptians, and I meet with none among that people which had not ſome relation to religion [*]. They knew nothing of games, theatrical repreſentations, races, combats, nor, in a word, of any of thoſe diverſions which were, by ancient and modern nations, comprehended under the name of ſhews or ſpectacles. The Egyptians forbid wreſtling, imagining that this exerciſe communicated to the body only a momentary and miſchievous ſtrength [x]. They conſidered muſic, not only as a uſeleſs, but pernicious art, as it ſoftened and enervated the mind [y].

With regard to the private amuſements of the Egyptians, we know not whether they had any, or if they had, of what kind they were. It appears only that this people uſed to keep their birthdays with rejoicings. Pharaoh, on ſuch an occaſion, gave a great feaſt to all his officers [z].

Some other particulars in the cuſtoms and manners of the

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[r] Deut. c. 23. v. 1.

[ſ] Apud Syncell. p. 59. D.

[t] See part 2. b. 1. chap. 2.

[u] *Supra*, p. 349.

[*] See Plato de leg. l. 7. p. 886.

[x] Diod. l. 1. p. 92.

[y] Ibid.

What Diodorus ſays of muſic, muſt be underſtood with ſome reſtrictions. That art was certainly not ſo much neglected by the Egyptians as he would have us believe. See Herod. l. 2. n. 79., Plat. de leg. l. 2. p. 789 790.; Clem. Alex. ſtrom. l. 6. p. 757.; et Diod. himſelf, l. 1. p. 19. & 20.

[z] Gen. c. 40. v. 20.

Egyptians might perhaps be mentioned; but I ſhall paſs them over in ſilence, to avoid too great minuteneſs and prolixity.

C H A P. III.

Of the people of Europe.

I ſhall ſay nothing at preſent of the people of Europe. Properly ſpeaking, there were as yet no manners in this part of the world. Its inhabitants were for many ages plunged into the moſt deplorable ignorance and barbarity. They had for a long time no fixed or formed ſocieties. We may recollect what I have ſaid of their primitive way of life in the preceding books [a]. Beſides, we know very little of the cuſtoms and behaviour of the firſt inhabitants of Europe, and want that particular information which is neceſſary to enable us to form any judgment of a people's manners.

C H A P. IV.

Critical reflections upon the ages which make the ſubject of this firſt part.

THE ages which we have been examining, have been long conſidered as the beſt and happieſt period of the world. Many writers of diſtinguiſhed merit have laboured to give us this idea of them. How often are we told, that, in the patriarchal ages, the world enjoyed a happy ſimplicity! that pride, ambition, luxury, and all tumultuous paſſions, were then unknown to the inhabitants of this earth? Nay, they go ſo far, as to repreſent them free from thoſe infirmities which are inſeparable from human nature. The elogium, in a word, is perfect; ſince whatever the poets have ſung of the golden age, is applied to theſe happy times. But is this application juſt? does it accord with the facts? This is what we are going to examine.

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[a] B. 1. chap. 1. art. 5. p. 64. b. 2. chap. 1. p. 105. &c.

When we would form a juſt eſtimate of any age, we muſt not be directed by vain declamations, and pompous panegyrics, dictated for the moſt part by a wild unbridled imagination. Hiſtory is the only guide which we ought to conſult and follow. If we peruſe, then, the annals of ancient nations, and collect the facts recorded in the hiſtory of theſe firſt ages, they will give us the moſt frightful and ſhocking ideas of them. A ſhort recapitulation will convince us of this.

They would perſuade us, that avarice and ambition were unknown to the firſt generations of men *. But if we caſt our eyes on hiſtory, we ſhall ſoon perceive the futility of this pretenſion. In the remoteſt ages, we meet with conquerors famous for their exploits and devaſtations, deſtroyers of mankind, whoſe ferocity was not reſtrained by any principles of humanity [b]. If the liſt of theſe ſcourges of the world is not long, this is becauſe the hiſtory of theſe firſt violences and uſurpations is but imperfectly known to us, from the great diſtance of time, and want of ancient monuments. Poſſibly, too, there might be nothing very intereſting to poſterity in theſe events, and therefore no care was taken to preſerve their memory [c]. But from the few facts which have been tranſmitted to us, we ſee clearly with what exceſſive cruelty

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* As we are ſpeaking of the ages after the deluge, this expreſſion, *firſt men*, which I uſe pretty frequently in this chapter, may appear improper. But to avoid prolixity, I hope I may be allowed to uſe this expreſſion of thoſe who lived in the firſt ages after the flood. May not that great event be conſidered as the beginning of a new world?

[b] See *ſupra*, b. 5 p. 322. &c.

[c] *Nam fuit ante Helenam:* ——————

—————— *ſed ignotis perierunt mortibus illi,*
Quos, Venerem incertam rapientes, more ferarum,
Viribus editior cædebat, ut in grege taurus.

Horat. ſerm. l. 1. ſat. 3. v. 107. &c.

wars were carried on in theſe firſt ages. The law of nations was then abſolutely unknown. Conquerors liſtened only to the dictates of their own brutality and rage [d].

They would alſo have us to believe, that pomp and luxury were unknown to the people of theſe times. I have already, if I am not miſtaken, ſufficiently refuted this pretence [e]. I ſhall add, that we ought to judge of manners only by compariſon. There was not, it is true, the ſame magnificence in the firſt ages as in later times. Thoſe elegant pleaſures which are the effects of induſtry, and the perfection of the arts, thoſe refinements, if we may ſo ſpeak, in voluptuouſneſs, it is certain had no exiſtence in the ages we are now contemplating. I am far from reproaching theſe firſt men for their ignorance, but neither would I have it to be reckoned honourable or meritorious [f]. They had a kind of luxury proportioned to the extent of their knowledge. We have ſeen ſeveral proofs of this in the chapter on manners and cuſtoms. All depends, as I ſaid above, on the compariſon of times and places. At preſent we would hardly take the leaſt notice of things which were reckoned the higheſt magnificence but two hundred years ago *. We find a taſte for dreſs and luxury in the rudeſt ages, and among the moſt ſavage nations.

Let us no longer then aſcribe chimerical virtues to the firſt ages. If plainneſs and ſimplicity appear to be their diſtinguiſhing characteriſtic, we muſt aſcribe this to their not knowing how to procure better accommodations, and not to their principles of virtue and moderation. The truth is, they were not eſſentially better men; they had neither more virtuous ſentiments nor greater probity on account of this ſimplicity. On the contrary, we ſee the ſame vices reigning then, which are in all ages the diſgrace of human nature; the ſame infidelity, malice, envy, murder, violence, and debauchery, which prevail in other times.

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[d] See *ſupra*, b. 5. p. 332. &c.

[e] *Supra*, b. 6. p. 335.

[f] Ibid. p. 330.

* We do not take the leaſt notice, at preſent, of a perſon for wearing ſilk ſtockings. But a pair of theſe ſtockings which Henry II. of France had on at his ſiſter's wedding, were admired as a piece of extraordinary magnificence.

I

I ſhall not bring theſe abandoned cities which were conſumed by fire from heaven, as examples of that corruption of manners which reigned in ancient times. It is proper to draw a veil over ſuch abominations. But we may recollect what was ſaid in the article of manners, on the adventure of Tamar and Judah [g]. It appears in general, that the people who lived in thoſe times, had no very high opinion of the virtue of their cotemporaries. Abraham apprehended that they would ſlay him for his wife's ſake. In fact, ſhe was twice taken from him, and that patriarch probably owed the preſervation of his life to the peculiar care of heaven. Iſaac had the ſame fears on account of Rebecca [h].

The ſtory of Dinah is ſufficient to ſhow what exceſſes men were capable of committing in theſe times. The ſon of a ſovereign carries off a young lady from her family, and proceeds to violence to gratify his paſſion. The ſons of Jacob, to ſatisfy their vengeance, are guilty of the vileſt perfidy, and proſtitute the moſt ſacred ceremony of their religion, to accompliſh their bloody purpoſes. The too credulous Sechemites, who had no concern in the crime committed by their prince, were maſſacred at a time when they thought themſelves ſecure under the ſanction of a treaty ſolemnly ſworn [i]. Could the moſt profligate ages be guilty of blacker and more atrocious crimes than theſe?

Good faith was not more reſpected in the affairs of private perſons, and even of near relations. Jacob agrees with his uncle Laban to ſerve him ſeven years, upon condition that he ſhould give him his daughter Rachel in marriage. When this term was accompliſhed, what a ſhameful impoſition was Laban guilty of to obtain other ſeven years ſervice from his nephew? In the night of the marriage, he ſubſtituted Leah in the place of Rachel; and Jacob was obliged to recommence his labours and ſervices to obtain his beloved miſtreſs. Could there be a more ſhocking breach of faith than this? What baſe treatment from an uncle to a nephew, who was alſo his ſon-in-law?

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[g] *Supra*, b. 6. chap. 1. p. 317.

[h] Gen. c. 26. v. 7.

[i] Ibid. chap. 34.

It was not private perſons only who were then guilty of ſuch violations of the moſt ſolemn conventions; whole nations were liable to the ſame reproaches. Abraham, in virtue of treaties and alliances which he had made with the people of Paleſtine, digged wells in different places [k]. I have ſhewn elſewhere the importance of ſuch conceſſions [l]. As ſoon as Abraham died, the people of the country ſtirred up quarrel after quarrel againſt Iſaac. They filled up the wells which his father had left him [m]. He was obliged to dig new ones; and it even coſt him no little trouble to keep poſſeſſion of theſe.

There was, we find, but little union and concord between perſons of the ſame family. Eſau and Jacob never lived on good terms. Joſeph's brethren carried their enmity againſt him to the greateſt extremity. Almoſt all Jacob's children gave him, at one time or other, the greateſt grief and provocation. To ſay all in one word, Reuben his eldeſt ſon dared to defile his father's bed [n]. Let us add, that the Lord ſlew one of the ſons of Judah, for an abominable crime he was guilty of, with a view, ſays the ſcripture, to extinguiſh his brother's race [o].

If from theſe certain and well-atteſted facts, we proceed to conſider the traditions which have been preſerved by ſeveral ancient nations, they will not give us a more favourable opinion of theſe primitive times. From theſe we learn, that originally men lived without laws, without government, without arts, liſtening to nothing but their brutal appetites. Inflamed with mutual rage, they endeavoured to deſtroy, and even devour one another [p].

Let us next caſt our eyes on thoſe events which happened in the firſt empires. We ſee, in hiſtory, Oſiris fall by a conſpiracy formed againſt him by his own brother Typhon; and ſuch conſpiracies have often deſtroyed the moſt excellent princes. The annals of all nations furniſh us with examples of

them.

[k] Gen. c. 21. v. 30.

[l] *Supra*, b. 5. p. 324.

[m] Gen. c. 26. v. 14. 15.

[n] Ibid. c. 35 v. 22. c. 49. v. 3. 4.

[o] Ibid. c. 38. v. 9. 10.

[p] See *ſupra*, b. 1. p. 3. b. 2. p. 79.

them. Saturn uſurped the throne from his father, and was in his turn ſupplanted by his ſon Jupiter. The firſt heroes, who were afterwards worſhipped, are chiefly diſtinguiſhed by their uſurpations, cruelties, and ſhameful exceſſes of all kinds [q]. What a character have the ancients left us of Ninus and Semiramis [r] ?

From theſe facts, therefore, let us draw this concluſion, that men have been eſſentially the ſame in all ages. From their birth ſubjected to the evil tendencies of a corrupted nature, they have laboured at all times to gratify their paſſions, ſometimes with leſſer, and ſometimes with greater degrees of delicacy, according to the taſte and knowledge of the age in which they lived. Mens ways of thinking and acting have always bore a relation to their circumſtances. The apparent ſimplicity of the firſt ages, ſo much celebrated by many authors, was owing to their ignorance and rudeneſs. Theſe times would be more truly characterized, by ſaying that vice then appeared in all its uglineſs and deformity.

I have forgot to ſpeak of hoſpitality. It is for this virtue the primitive times are chiefly famed. But, in my opinion, hoſpitality was then exerciſed, not ſo much from generoſity, and greatneſs of ſoul, as from neceſſity. Common intereſt probably gave riſe to that cuſtom. In remote antiquity, there were few or no public inns. They ſhewed hoſpitality therefore from ſelf-love. They entertained ſtrangers, in hopes that they might render them the ſame ſervice, if they happened to travel into their country. Hoſpitality was reciprocal. When they received ſtrangers into their houſes, they acquired a right of being received into theirs again. This right was regarded by the ancients as ſacred and inviolable, and extended not only to thoſe who had acquired it, but to their children and poſterity.

Beſides, hoſpitality in theſe times could not be attended with much expenſe. Men travelled but little, and without much retinue. In a word, the modern Arabians prove very clearly, that hoſpitality may conſiſt with the greateſt vices, and that this ſpecies of generoſity is no deciſive evidence of goodneſs of heart, or rectitude of manners. The general character of the Arabians is well known, and yet there is not a more hoſpitable people.

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[q] See Sanchoniat. apud Euſeb. præparat. evang. l. 1. c. 10. p. 34. 35. &c.

[r] See Conon, apud Phot. narrat. 9. p. 428. 429.; Diod. l. 2. p. 114. 119. 127.; Juſtin. l. 1. c. 2.; Plin. l. 8. ſect. 64. p. 466.; Plut. t. 2. p. 753. D.; Syncell. p. 64.

I am far from denying that there were ſome virtuous perſons in the firſt ages. The holy ſcriptures prove there were. But they prove at the ſame time, that the number of theſe truly virtuous perſons was but ſmall; and every thing elſe ſhews, that the reſt of mankind were wicked, unjuſt, cruel, and debauched, living, in a word, without ſhame or modeſty, without any principles or rules of moral conduct. It is to nothing then but that ancient humour of decrying our cotemporaries, that the primitive ages owe the virtues which have been lent them, and the praiſes which have been ſo laviſhly beſtowed upon them. But theſe pompous declamations vaniſh and diſappear before the torch of truth.

It is of importance to take notice, that theſe reflections do not in any manner contradict that tradition which univerſally prevailed in all ancient nations, concerning that ſtate of innocence and felicity which man enjoyed in the firſt age of the world. This truth is too generally and uniformly atteſted to admit a doubt. The Babylonians, Egyptians, Chineſe, Greeks, Latins, all thoſe nations, in a word, whoſe traditions concerning the primitive ſtate of man we know any thing of, declare with one voice, that man originally enjoyed a ſtate of innocence and felicity, which he has never again recovered. This concurring teſtimony of all nations, to the Moſaic hiſtory of the firſt man, is ſufficient to demonſtrate its truth, if we were even to conſider this legiſlator of the people of God as a common hiſtorian. The caſe, as to a matter of fact, is very different from that of a principle in morality, or a diſcovery in the arts or ſciences. Men in different ages and countries may entertain the ſame ſentiments in morals, or hit upon the ſame diſcoveries in arts and ſciences, without having communicated their thoughts to each other. But this cannot happen as to a matter of fact or point of hiſtory. When that is known, and admitted by all nations, it muſt not only be authentic, but it muſt have flowed from one common ſource. The tradition therefore concerning the ſtate of innocence in the firſt age of the world, is undiſputable. But it would be wrong to apply this tradition to the ages we have been examining. The contrary is ſufficiently demonſtrated by all the remaining monuments of antiquity.

DISSERTATIONS.

DISSERTATION I.

On Sanchoniatho.

EUſebius has inſerted, in his Evangelical Preparation, a long extract from an ancient Phœnician hiſtorian, named *Sanchoniatho*[a]. This author, he ſays, wrote before the Trojan war, and, it was believed, had been very critical in his inquiries[b]. Sanchoniatho had wrote in his native language, the Phœnician; but his work had been tranſlated into Greek by Philo of Byblos, who muſt not be confounded with Philo the Jew, whoſe writings are ſtill extant[c]. Philo had divided his tranſlation of Sanchoniatho into nine books. To theſe he had added ſome prefaces, of which Euſebius has alſo given us a few extracts[d]. Philo, among other things there, ſaid, "That Sanchoniatho, a man of great learning "and experience, being extremely deſirous to know the hiſtories of all nations, had ſought out and examined the "writings of Thoth, with the greateſt care, imagining "that as Thoth had been the inventor of letters and writing, he was alſo the firſt of hiſtorians[e]."

Sanchoniatho then, according to the teſtimony of his tranſlator, had built his hiſtory on the writings of that venerable ſage, called by the Egyptians *Thoth*, by the Greeks *Hermes*, by the Latins *Mercury*[f].

Philo, as Euſebius further informs us, did not content himſelf with only commending Sanchoniatho. He made uſe of the facts recorded by that author, as authorities, to convince the Greeks of ignorance, on one of the moſt important and intereſting ſubjects. He accuſed them of turning the hiſtory of the ancient divinities, which were worſhipped in their country, into inſipid allegories; and blamed them for endeavouring to explain away true facts and real events, into the phænomena of nature [g].

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[a] L. 1. c. 9. p. 30. D. [b] Ibid. [c] Ibid. [d] Ibid. p. 31. D.
[e] Euſeb. l. 1. c. 9. p. 31. D. [f] Ibid. p. 31. 32.

The author which Philo had tranſlated, had proceeded in a different manner. After diligent inquiries and long ſtudy, he had compoſed a hiſtory, in which it appeared, that theſe ancient divinities had been originally famous men, afterwards deified by ſuperſtition. What he related of their actions, and the principal events of their lives, he had collected partly from monuments exiſting in ſeveral cities, and partly from memoirs depoſited and preſerved with care in the moſt ancient temples [h].

The common prejudices of tranſlators are well known. Theſe encomiums, therefore, of Philo, might have appeared ſuſpicious, if they had not been confirmed by the teſtimony of ſome impartial and diſintereſted author. It is probably for this reaſon, that Euſebius has taken care to acquaint us, that the ſentiments of Porphyry concerning Sanchoniatho's hiſtory were not leſs favourable than thoſe of Philo [i]. This is ſufficient to intitle this monument of antiquity to particular regard.

There is hardly any thing in all antiquity has ſo much exerciſed the critics. The importance of the matter has, no doubt, been the cauſe of this. If the authenticity of Sanchoniatho is eſtabliſhed, and if it is not a piece fabricated in after times, we have in it the moſt ancient hiſtory of mankind that we know, next to that of Moſes. Our buſineſs, therefore, is to examine the authenticity of this fragment, to inquire if it ought to poſſeſs the firſt place among all the monuments of profane antiquity, which have eſcaped the injuries of time. For it is univerſally known, that the fragments which we now have under the names of Hermes, Zoroaſter, Thoth, and Orpheus, are the forgeries of authors very modern, in compariſon of thoſe whoſe names they bear.

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[g] Euſeb. p. 32.

[h] Ibid.

[i] Ibid. l. 1. c. 9. p. 31. & 40.

The labours of the learned on the writings of Sanchoniatho, had no other object but to illuſtrate and explain them, till towards the concluſion of the laſt century. No body, that I know, ſo much as ſuſpected them to be forgeries. J. H. Urſinus [k] was, I believe, the firſt who raiſed doubts about the authenticity of Sanchoniatho. This opinion has been adopted by ſeveral writers, and among others by R. Simon. But the manner in which he expreſſes himſelf, plainly enough ſhews that the attacks made upon the authenticity of this fragment had been attended with little ſucceſs [*]. Accordingly we ſee that many of the moſt learned critics have given a different judgment, and regarded this extract of Euſebius, as a precious relic of the ancient traditions of the eaſt [†]. I do not deſign

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[k] J. H. Urſini, de Zoroaſtre, Hermete, Sanchoniatone, Exercit. fam. Norimberg, in 12° 1661.

[*] Theſe are his words. "It would ſeem," ſays he, "that we cannot, without "a kind of temerity, ſuſpect the famous work of Sanchoniatho, which contains the ancient theology of the Phœnicians. All our beſt critics have "quoted it with encomiums after Euſebius." Biblioth. critiq. or Recueil de diverſes pieces critiques publiées par M. de Saint-Jorre, à Baſle, 1709, t. 1. c. 10. p. 131.

Let us make two very ſhort reflections on theſe words of M. Simon. 1. He confeſſes that very able critics have acknowledged the authenticity of Sanchoniatho. 2. He ſeems to ſuppoſe, that Euſebius is the only author of antiquity, who gives his teſtimony in favour of this ancient writer. M. Simon does more; for he adds, that Euſebius ſpoke of Sanchoniatho only from Porphyry. Yet we ſee, that Theodoret made uſe of the writings of Sanchoniatho, to prove that the gods adored by the Pagans, had been originally men. Euſebius, therefore, is not the only one among the ancients who has quoted Sanchoniatho. The contrary ſhall be proved by and by. Neither is it true, that Euſebius ſpeaks of Sanchoniatho only from Porphyry. This, as we ſhall ſee preſently, is another groſs miſtake of Mr Simon.

[†] Bochart, Voſſius, Marſham, Huet, Cumberland, la Croze, and in the laſt place, M. Fourmont in his critical reflections on the hiſtory of ancient nations.

Father Kircher affirms, that there were ſome fragments of Sanchoniatho in the Great Duke's library. He adds, that he himſelf, at the time of his writing, had in his hands another fragment of Sanchoniatho, conſiſting of ſeveral ſheets, written in the Aramean, that is to ſay, Phœnician language, which is much the ſame with the Chaldee and Syriac. Father Kircher thinks, that this deſign to enter into all the details which the diſcuſſion of theſe two opinions might require. Yet as I have made ſo much uſe of this fragment we are treating of, I think I cannot diſpenſe with myſelf from repreſenting in a few words, the reaſons which have determined me to regard it as an authentic monument, happily eſcaped from the injuries of time.

The opinion of thoſe who look upon Sanchoniatho as a forged piece, cannot be ſupported without aſcribing ſome views, ſome motives to the author of ſuch a forgery. We muſt examine, therefore, what theſe views could be. But it is neceſſary to inquire, firſt, on whom the ſuſpicion of this pretended forgery muſt fall. We ſhall diſcuſs theſe two points in as ſummary a manner as poſſible; and this diſcuſſion, I am perſuaded, will clearly ſhew how little ſolidity there is in thoſe arguments which have been alledged to call the authenticity of this fragment in queſtion.

Philo of Byblos is indiſputably the only perſon on whom the ſuſpicion can fall, of having forged Sanchioniatho. It is a groſs miſtake, to aſcribe this work to Prophyry. Athenæus, more than forty years before Prophyry, quoted Sanchoniatho [l]; and he is not the only author anterior to Prophyry who has mentioned it. Clemens of Alexandria, as St Cyril reports, ſpoke of Sanchoniatho as a Phœnician hiſtorian, who had wrote in his own native language, and whoſe work had been tranſlated into Greek [m]. It is true, we do not find at preſent

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this fragment had been tranſlated into the Aramean language, from the original of Philo. This MS treats, as he ſays, of the manners and cuſtoms of the Egyptians, and principally of the myſteries of Mercury, not containing, however, any thing which is not to be found in other authors.

M de Peireſc had received this fragment from the eaſt. It had been taken out of the library of Damas. M. de Peireſc had ſent a copy of it to Rome to Father Kircher in 1637, for him to explain it. It was, as we ſee, but a ſlender diſcovery.

Father Kircher adds from Leo Allatius, that Philo's tranſlation of Sanchoniatho had been found a little before in the library of a monaſtery near Rome; but that this MS being eſteemed rare and valuable, had been ſtolen ſoon after, and never could be recovered. Obeliſc. Pamphil. p. 110. *Sit penes auctorem fides.*

[l] L. 3. p. 126. A.

[m] Adverſ. Julian. l. 6. p. 205.

It is through inadvertency that St Cyril in this paſſage names Joſephus, inſtead of Philo, as the tranſlator of Sanchoniatho.

in the writings of this father, the paſſage which St Cyril had in his eye, when he wrote what I have repeated; but we need not be ſurpriſed at this. We have not all the writings of Clemens of Alexandria: the beginning of the firſt book of his Stromata is entirely wanting, and there are ſeveral breaches in the other books. Sanchoniatho, then, has been quoted as an author of antiquity by Athenæus, Clemens of Alexandria, Porphyry [n], and St Cyril, not to mention Euſebius, Theodoret [o], and Suidas. We may even obſerve, with reſpect to this laſt writer, that he ſpeaks of Sanchoniatho in ſuch a manner, as to give us to underſtand, that he did not refer to the teſtimony of Euſebius [p].

Laſtly, Euſebius did not quote Sanchoniatho, as an extract taken from Porphyry; it was from the tranſlation of Philo itſelf, that he had copied the fragment which he has inſerted in his Evangelical Preparation. On the ſuppoſition, therefore, that Sanchoniatho was a forged hiſtory, it could be done by no body but Philo.

But, as we ſaid a little above, in order to determine an author to forge ſuch a work as that of Sanchoniatho, he muſt have had ſome views, ſome motives to engage him to commit ſuch an act of infidelity. But what views, what motives can be aſcribed to the pretended forger of Sanchoniatho? To this day, they have been able to invent only two; the one to oppoſe this work to the writings of Moſes; the other to prevent the progreſs of Chriſtianity, and reſtore the ancient religion, by purging it of the ſuperſtitions which defaced it [q]. Theſe two motives are equally imaginary and chimerical. Philo wrote under Adrian [r], about the year 125 of the Chriſtian æra. A ſingle glance of the eye, on the ſtate of Jews and Chriſtians in theſe ages, is ſufficient to ſhew how little ſtrength there is in all the reaſonings juſt now mentioned.

The Jews did not endeavour to propagate their religion;

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[n] De abſtinent. l. 2. p. 224. [o] De curand. Græc. affect. lib. 3. p. 34.

[p] Voce *Σαγχωνιαθων*, t. 3. p. 274.

[q] See L'hiſt. crit. de la republiq. des lettres, t. 6. p. 57. et 58.

[r] Suidas, *voce Φιλω Βυβλιος*, t. 3. p. 613.

and we do not find, that the infidel nations which ſurrounded them, carried on any religious controverſy with them. It does not even appear, that in any age their religion attracted much of the attention of other nations. Beſides, the Jews never made any great figure in the world of letters: after the deſtruction of Jeruſalem particularly, we may affirm, that they were of little or no conſideration. Hiſtory repreſents them as conquered by the Romans, driven from the ſight of their depopulated country, ſtruck by the divine malediction, wandering from place to place, proſcribed over the whole world, abhorred by all nations; quite ingroſſed by their calamities, and a chimerical expectation, they were never named but to be ridiculed. Adrian, under whom Philo of Byblos wrote, finiſhed, if we may ſo ſpeak, the annihilation of the Jews, when he built Ælia on the ruins of Jeruſalem.

With reſpect to Chriſtians, I acknowledge, that, in Philo's time, the goſpel had already made conſiderable progreſs; yet I do not imagine, that the diſciples of Jeſus Chriſt, and the excellence of their religion, were then ſufficiently known, to give great alarms to the patrons of Paganiſm. At that time they almoſt always confounded the Chriſtians with the Jews. Beſides, I do not think, that, under Adrian, very many perſons of diſtinction, either for their philoſophy and learning, or their birth and dignities, had as yet embraced the goſpel. Thus, the little progreſs Chriſtianity had made in the great world, could not have excited ſuch a degree of jealouſy, as to oblige Philo to undertake ſo great a work as that of Sanchoniatho; a work which muſt have coſt him infinite labours and reſearches. For what prodigious pains muſt a writer be obliged to take, who would forge a hiſtory in the name of an author of antiquity *?

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* Some critics have been pleaſed to ſay, that Philo had done nothing but appropriate to himſelf the books of Moſes, by adapting them to his own particular views. In truth, a man muſt be ſtrangely biaſſed, not to perceive the prodigious difference there is between the books of Moſes and the fragment of Sanchoniatho. I ſhall ſpeak of this by and by at more length. In the mean time, we ſhall affirm that it is impoſſible to prove the leaſt reſemblance between the hiſtory of Moſes and that of Sanchoniatho, on ſome of the moſt intereſting ſubjects, as the fall of man, the worſhip of one God only, and condemnation of idolatry, &c.

Beſides, if Philo compoſed his Sanchoniatho, as it is ſaid, with a deſign to prevent the progreſs of Chriſtianity, by ſetting up againſt it the ancient religion purged from the abſurdities which betrayed its weakneſs; it muſt be confeſſed, that he has taken the worſt way in the world to accompliſh this deſign. Philo ſays, it is true, that the hiſtory of Sanchoniatho is purged of the ridiculous fables with which the works of the Greeks are ſtuffed. But the fables which we find in it, though of a different kind, are at leaſt as bad as thoſe of Homer and Heſiod. Such are his animated ſtones, the ſtar found by Aſtarte, and conſecrated in the city of Tyre; the caſtration of Cœlus by Saturn, and that of Saturn by himſelf, an example which he obliged all his companions to follow: not to ſpeak of the thunder which gives motion to animals already created by the ſuperior Spirit, as if awakened out of a profound ſleep, &c. Behold ſome oriental fables, at leaſt, as abſurd as thoſe of the Greeks. Let us no longer, therefore, aſcribe to Philo a deſign, which the reading of Sanchoniatho alone, is ſufficient to convince us he could not entertain.

It is much more natural to think, that Philo had a mind to mortify the vanity of the Greeks, by ſhewing, that his native country had produced writers of merit long before Greece. With this view he might endeavour to revive the hiſtory of Sanchoniatho. This preference inclines me to think, that Sanchoniatho was the moſt ancient and moſt admired of the Phœnician authors; for Philo could have tranſlated others. The eaſt had produced fruit, at a time when the firſt ſeeds of ſcience had ſcarcely begun to ſhoot up in the weſt. Phœnicia, in particular, had been the nurſery of ſeveral learned men in the remoteſt ages. Strabo ſpeaks of a writer of that nation, named Moſchus, who flouriſhed before the Trojan war [ſ]. This Moſchus had wrote on different parts of philoſophy, on atoms, on the formation of the world [t], &c. Philo muſt then have choſen Sanchoniatho as an author capable of ſhewing, that Phœnicia had produced celebrated writers, at a time when the Greeks did not ſo much as know the art of writing.

[ſ] L. 16. p. 1098.

[t] Strabo, *loco cit.*

I ſuſpect further, that Philo might have another motive for tranſlating Sanchoniatho. When the philoſophers had convinced the Greeks of the abſurdity of the traditions which prevailed concerning their gods, two ſects ſprung up. The one allegorized all theſe pretended divinities, and ſaid that mythology was nothing elſe but a kind of enigmatical phyſics, in which the different operations of nature were couched under the emblem of the different deities which were the object of religious worſhip. The Stoics very ſucceſsfully propagated this opinion. The other ſect, more ſenſible, confeſſed honeſtly, that the gods whom they adored, had been originally men; but they pretended that theſe men had juſtly merited their apotheoſis by the ſublime diſcoveries which they had communicated to mankind. Evhemerus the Meſſenian was the greateſt promotor of this ſyſtem. He compoſed a hiſtory of the gods[*], which he pretended to have collected in the courſe of his travels, and extracted from the moſt ancient monuments which ſtill exiſted in the temples which he had viſited[u]. Whatever might be the intention of Evhemerus, he was treated as an Atheiſt by the greateſt number, and his memory remains loaded with this reproach. But he had followers who maintained his opinions and explanations. They reduced into hiſtory every thing they found in fable, which had the leaſt affinity to events which had happened in ancient times.

Thus two ſects were formed in the boſom of Paganiſm, the Allegoriſts and Evhemeriſts. We cannot but diſcern in Philo of Byblos, the tranſlator, or rather paraphraſt of Sanchoniatho, one of the moſt warm and zealous partiſans of Evhemerus. He found in Sanchoniatho, a writer who in many reſpects favoured the ſect which he had embraced. He therefore tranſlated this ancient hiſtorian. But he did not content himſelf with a plain literal tranſlation. We ſee that he inſerted without reſerve into the text of his author, whatever additions and explications he thought were proper to favour his own peculiar ſentiments, and to make men find in the Phœnician traditions, the principles of the Evhemerian theology. Hence that mixture of Greek and Phœnician opinions, which has raiſed prejudices in ſo many learned men.

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[*] It was intitled Ἱερὰ Ἀναγράφη.

[u] See the diſſertation of M. Fourmont in the mem. de l'acad. des inſcript. t. 15. p. 265.

In reality, I am inclined to think, that it is this mixture of facts and opinions, in appearance contradictory, the want of uniformity in the ſtyle, and continuity in the narration, which have moſt contributed to make this fragment of Sanchoniatho be regarded as a forgery. But the cauſes of theſe ſingularities are not difficult to diſcover, if we will inquire into them. We eaſily perceive, at a ſecond, or at moſt at a third reading, that Euſebius does not tranſcribe the text of Sanchoniatho, or, to ſpeak more properly, of his tranſlator, in a connected ſeries, and as it lay in the copies of that author. We ſee plainly, that he pretty often interjects his own reflections ; we perceive likewiſe, that he has frequently broke off the narration, and brought together facts which certainly did not follow each other in the Phœnician hiſtorian. There are alſo ſeveral places where a diſcerning critic will diſcover certain illuſtrations taken from thoſe ſort of prefaces, which, as we ſaid at the beginning of this diſſertation, Philo had added to his tranſlation. Euſebius has inſerted fragments of theſe where-ever he thought they would throw any light upon the ſubject. Theſe interpolations, which are very eaſily diſtinguiſhed, made us ſay, that, in all appearance, the Greek Sanchoniatho, is rather a paraphraſe than a faithful verſion of the Phœnician. Therefore we muſt not think that the extract of Euſebius repreſents exactly the text of Sanchoniatho. On the contrary, it is evident, that this fragment, as we have it at preſent, is what we call interpolated ; that is to ſay, that Euſebius ſometimes tranſcribes the words of Sanchoniatho, or, to ſpeak more exactly, of the tranſlation of Philo of Byblos ; it is ſometimes the commentaries and additions of the tranſlator ; and pretty often he adds and inſerts his own reflections.

But when by a ſerious ſtudy, and an exact analyſis of the ſeveral parts of this fragment, we have ſeparated theſe foreign interpolations from the genuine text of the author, one muſt be in ſome ſort blind, not to perceive, in what remains, all the marks which characteriſe an original author, and point out the age and country of Sanchoniatho. Such are the ancient names of the Grecian deities, names purely oriental: the coſmogony of the Phœnicians very different from that of the Greeks: ſeveral facts which have an evident and direct reference to the ancient religion of Phœnicia, one of the principal articles of which was, the obligation of ſacrificing their children in a time of calamity: not to ſpeak of ſeveral other marks equally characteriſtic which we meet with in this fragment. If we will take into conſideration, therefore, all that I have now ſaid, viz. the paraphraſe which Philo has made of the original, the additions he has inſerted with particular views of his own, and the illuſtrations which Euſebius alſo has added from time to time; it will not be difficult, I imagine, to anſwer all the criticiſms which have been made on the fragment in queſtion. It is not a forged piece; it is a part of the tranſlation which Philo had made of the whole work of Sanchoniatho.

The ſuffrage of Euſebius, independent of all that we have now ſaid, is ſufficient to defend it againſt all the objections which can be formed. If Sanchoniatho had been, in fact, nothing but a bad imitation of the ſacred books; a work forged in later times, and falſely aſcribed to a writer of the moſt remote antiquity by Philo and Porphyry; is it to be imagined, that ſuch a writer as Euſebius would have ſuffered himſelf to be deceived by ſuch a groſs impoſture? Would he have given us a work of ſo modern a date, for a monument of the remoteſt ages? It is ſufficient to compare dates: Philo of Byblos wrote under Adrian: Euſebius was not ignorant of this. The tranſlation of Philo might then appear about the year 125 of the Chriſtian æra. Euſebius flouriſhed, and was in his prime, at the council of Nice, in 325. Was an interval of two centuries ſufficient to bring this forgery of Philo into ſuch credit, as to impoſe upon Euſebius? With reſpect to Porphyry, the thing is ſtill more incredible. We know that Porphyry was almoſt cotemporary with Euſebius.

In a word, the ſilence of the Emperor Julian, who was but thirty years poſterior to Euſebius, ſeems to me deciſive in favour of Sanchoniatho. If that book had been a forgery, and if Euſebius had quoted a falſe and fabricated piece but a little before his time, would Julian have neglected to expoſe ſuch a blunder?

But, it will be ſaid, does not the real work of Sanchoniatho, independent of the additions of Philo, contain a great many abſurd fables? Of what uſe therefore can this fragment be, and what authority can it have? I anſwer, that, in reality, we meet with ſeveral abſurd and incredible things in the abſtract of Euſebius. But it is one thing to ſay, that the name and works of Sanchoniatho are mere forgeries and chimeras (much as a learned man well known, advanced, that all the Greek and Roman antiquities had been fabricated by the Benedictines and Dominicans of the 13th century), another thing to ſay only, that Sanchoniatho had mixed a good many fables and abſurd traditions in his writings, in which he had really preſerved the opinions of his country, the manners and religion of his nation, &c. Theſe two propoſitions are very different. Theſe are, in a few words, my ſentiments of Sanchoniatho.

It is certain, we meet with a good many fabulous traditions in this hiſtorian. In this reſpect, he found himſelf in the ſame condition, with all the authors of Paganiſm, who had a mind to write concerning the origin of the world, and the primitive hiſtory of mankind. Their writings muſt neceſſarily be mixed with many fables, partly from that obſcurity which always accompanies remote events, and partly from the falſe marvellous of popular traditions, whoſe property it is to adulterate facts, and annex extraordinary circumſtances to them. Criticiſm muſt ſeparate what is falſe from what may be true. In this fragment of Sanchoniatho, his hiſtory of the creation is nothing elſe but the primitive tradition of mankind, but changed and disfigured by a writer who did not himſelf underſtand it, and who, beſides, affected to ſpeak enigmatically, according to the cuſtom of all the ſages of antiquity.

As to what Sanchoniatho ſays of the original ſtate of men, and the actions of thoſe whom he conſiders as the firſt parents of mankind, criticiſm places in the claſs of fables, every thing which it finds in this writer contrary to the ſacred hiſtory, and the light of reaſon. But what he ſays of the origin of arts, what he relates of the actions of Acmon, Uranus, Saturn, and Jupiter, being agreeable enough to all we know of the ſtate of mankind in the firſt ages after the flood, may, and ought to be regarded as true, after diveſting his narration of the marvellous which accompanies all the events of very remote antiquity.

Before I conclude, I think I ought to ſpeak my ſentiments of a ſyſtem, which has been but too generally adopted by thoſe learned men who have regarded the fragment of Sanchoniatho as an original and authentic piece. There is not one of them who has not alledged, that this author had ſome knowledge of the ſacred books. They fancy they perceive ſome conformity between Moſes and Sanchoniatho in the creation, in the firſt events which happened in the world, and chiefly in the number of generations reckoned up in the writings of both theſe hiſtorians. On this foundation they have made great efforts to diſcover the names and actions of the ancient patriarchs, in the perſonages of Sanchoniatho. But this ſyſtem is liable to difficulties, which, I imagine, will always be difficult to overcome.

Although we ſhould ſuppoſe, what I by no means admit, that there is ſome kind of conformity between Moſes and Sanchoniatho, concerning the creation of the world, this would not prove that the Phœnician hiſtorian was acquainted with the ſacred books. A tradition concerning the creation of the world, has prevailed in the moſt ancient times [x]. It is not neceſſary to believe, that the knowledge of this great work could be acquired only from the books of Moſes; the hiſtories of all nations lead us up to a beginning: this is a truth atteſted by the writers of all countries, whoſe authority has always very much embarraſſed thoſe ancient philoſophers who endeavoured to call this truth in queſtion. It was from this ſource, therefore, that is to ſay, from the general tradition concerning the hiſtory of the world, that ancient authors derived their idea of an almighty being, who had created and arranged the univerſe; with this difference, that they have adulterated, diſfigured, and darkened this precious truth, and that Moſes has preſerved it pure, and as it proceeded from the patriarchs [y].

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[x] See Bannier, explicat. des fables, t. 1. p. 140. 141. 174. 178. 192. 193. 207. 218. 240.

Independent of this reflection, every thing proves, that Sanchoniatho could borrow nothing from the ſacred books, if we conſider the age in which he lived, *viz.* in the time of the judges. The Jews were then under the dominion of their neighbours; they were, in theſe times, both more ignorant and more deſpicable than they were afterwards. It was preciſely in this interval that they ſuffered ſeveral captivities: the Jews then, for the moſt part, neglected to read their own books, and ſcarce adhered to their own religion. Beſides, this nation has always been much deſpiſed, and even but little known by other nations.

To this reaſon, founded on the ſtate and condition of the Jews in Sanchoniatho's time, let us add, that they always kept their books and their myſteries a profound ſecret; to which we may join the little communication they had with ſtrangers, from their contempt of them, and their fear of being polluted by them [z]. Theſe conſiderations are ſufficient to ſhew, that profane authors could not borrow any thing from the ſacred books.

It has been imagined, notwithſtanding, that Sanchoniatho muſt have had ſome communication with the Jews. Porphyry ſays, that this hiſtorian had learned ſeveral particulars of which he ſpeaks from Jerombaal, the prieſt of the god Jevo [a]. On this, Bochart maintains, that Gideon is the Jerombaal deſigned by Porphyry. But firſt, Philo, who was better acquainted with the writings of Sanchoniatho than Porphyry, does not ſay one word of this Jerombaal. On the contrary, he affirms, that it was from the writings of Thoth, that the Phœnician hiſtorian had taken the ſubſtance of his hiſtory.

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[y] Bannier, *loco cit.* p. 209.

[z] See le Clerc, bibl. anc. & mod. t. 25. p. 335. 336.

[a] *Apud* Euſeb. præp. evang. l. 1. cap. 9. p. 31. & 32.

Beſides, the title of *prieſt*, given by Porphyry to Jerombaal, cannot agree to Gideon, who was neither of the tribe of Levi, nor of the family of Aaron: Laſt of all, it appears that Gideon himſelf was an idolater ſome part of his life [b].

I do not pretend to draw an argument in favour of the opinion I am now maintaining from Sanchoniatho's ſilence about the deluge, the greateſt and moſt memorable event that ever happened, an event of which almoſt all other hiſtorians have ſpoken, the tradition of which has been preſerved by all nations, and which Moſes has related with ſuch wonderful veracity and exactneſs. It is nevertheleſs certain, that Sanchoniatho does not ſay one word about it. I ſhall not, however, take any advantage of his ſilence. For we muſt obſerve, that the original of Sanchoniatho has been loſt a long time ago; we have nothing but a very imperfect extract from it, and that taken from a very unfaithful tranſlation [c]. Beſides, ſeveral critics have very well proved, that Sanchoniatho, though acquainted with the deluge, might have paſſed it over in ſilence, for very obvious reaſons [d]. But how are ſo many other important omiſſions to be accounted for? ſuch as, for example, the fall of the firſt man, the confuſion of tongues, and the diſperſion of mankind? I ſhall omit alſo the reflections which naturally ariſe from this circumſtance, that the firſt men ſpoken of by Sanchoniatho have not the ſmalleſt reſemblance to the real progenitors of the human race, Adam, Eve, Noah, Shem, Ham, and Japhet.

Therefore let them hunt after analogies between the Greek and Phœnician languages as long as they pleaſe, I ſhall always regard as loſt labour, all that pains and ſtudy which ſeveral men of learning have been at to make the Phœnician hiſtorian's account of his perſonages agree with the ſcripture-hiſtory of the patriarchs. A few little touches, which, with much ſtraining, may be applied to ſome circumſtances or events of the lives of the patriarchs, are not ſufficient to eſtabliſh ſuch an agreement. Accordingly we find, that there is no ſort of uniformity among the authors I am diſputing with, in their application of theſe facts. I repeat it, therefore, that if we judge of this matter impartially, and without prejudice, we ſhall ſee no reaſon to imagine that Sanchoniatho had any knowledge of the writings of Moſes. It is truth that ſpeaks, and diſplays itſelf every moment in the books of Moſes. The moſt abſurd tales and fables run through the whole work of Sanchoniatho. We perceive, it is true, in the writings of this author ſome veſtiges of the primitive tradition concerning the original ſtate of human nature; but this tradition appears there quite disfigured as to the moſt important truths, and viſibly changed even in the moſt material circumſtances of the hiſtorical events which it relates.

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[b] The ſcriptures ſeem to hint this very plainly, Judg. c. 8. v. 27.

[c] See *ſupra*, p. 377. & 378.

[d] See explicat. des fables, par M. l'Abbé Banier, t. 1. p. 160. & 173.

DISSERTATION II.

Upon the authenticity and antiquity of the book of Job.

THE frequent uſe which I have made of the book of Job, for proving that certain arts and practices obtained in the remoteſt ages, obliges me to engage in an inquiry into the antiquity and authenticity of that work. There is not one of all the ſacred books concerning which more difficulties have been raiſed, or more conjectures formed. Some pretend, that Job is only an imaginary perſon, and look upon his hiſtory as nothing but an apologue. Others admitting the reality of his exiſtence, are not agreed either about his family, his country, or the age in which he lived. The critics are no leſs divided about the author who has tranſmitted that work to us. I ſhall not engage in all the reſearches which a rigorous diſcuſſion of the different opinions propoſed by commentators would require. It will be ſufficient, I think, briefly to touch upon the principal heads, and repreſent my own ſentiments on theſe queſtions which have been ſo often debated.

It is without any foundation that certain critics have advanced, that Job was an imaginary perſon. His book is not an apologue, and ſtill leſs a tragi-comedy. The prophet Ezekiel ſpeaks of Job as one who had really exiſted [a]. The ſacred author, who has wrote the hiſtory of the two Tobits from the memoirs of the father and the ſon, proves clearly, by his panegyric upon Job, that he had been regarded by all antiquity as a real perſon, and his hiſtory as a true hiſtory [b]. St James in his epiſtle ſpeaks of him in the ſame manner [c].

Beſides, the author of this work would certainly have ſaved himſelf the trouble of thoſe circumſtantial details which we find in the preliminary hiſtory at the beginning of the book of Job, if he had deſigned only to compoſe an apologue. The author there ſpecifies, with that preciſion which characteriſes real hiſtorical narrations, the number of Job's children, the kinds and quantity of his goods, the names and country of his friends; and though the greateſt part of theſe names may have myſtical ſignifications, this does not hinder their being the true names of real perſons, ſince it is the ſame with all Hebrew and Chaldean names. In a word, there is nothing in the narration of the book of Job which can authoriſe us to deny the reality of his hiſtory. I ſee no particular reaſons to deny it; and we cannot do it without diſregarding the teſtimony of Ezekiel, Tobit, and St James, who, as we have ſeen, ſpeak of Job as a real and not an imaginary perſon. After theſe reflections, we have nothing to do, but inquire where, and at what time Job may have lived, and in what manner his work has been tranſmitted to us.

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[a] C. 14. v. 14.

[b] Tobit, c. 2. v. 12.

[c] Chap. 5. v. 11.

Job was of the land of Huz or Uz [d], that is to ſay, of Idumea, the country where Eſau, otherwiſe called *Edom*, fixed his habitation after the death of Iſaac. Idumea had been originally inhabited by the Horites, a people who derived their name from one Hor or Hori, of whom the ſcripture makes mention [e]. This country was then named the land of Seir [f]. Uz, the country of Job, was a part of Idumea, as Jeremiah expreſsly tells us [g]. This diſtrict, or rather this province, was ſituated on the borders of Arabia the Deſert. It was there that Job, after he had happily overcome all his trials, compoſed in verſe, a narrative of this memorable event. It is even probable, that he put it in writing; for we ſee, by the manner in which he expreſſes himſelf, that the art of writing was known in his time [h]. Job embelliſhed his narration with all the riches of poetry; and, according to the eaſtern manner, made uſe of many metaphors and other hyperbolical expreſſions.

As to the time in which he lived, ſeveral commentators think, that Job is the ſame with him who is ſpoke of in Geneſis under the name of Jobab [i], who had for his mother Bozra, for his father Zara the ſon of Rahuel, the grandſon of Eſau [k]. They ſay, that he was born the ſame year that Jacob went down into Egypt [l]. This opinion is founded upon an addition which we read at the end of the Septuagint verſion and of the old Vulgate. All agree, that this addition is very ancient. Theodotion retains it in his tranſlation. Ariſtæus, Philo, and ſeveral others acknowledged and made mention of it [m]. Euſebius ſeems alſo to have adopted it [n].

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[d] C. I. v. I.

[e] Gen. c. 36. v. 22. & 30.

[f] Ibid.

[g] Lament c. 4. v. 21.

[h] C. 19. v. 24. c. 31. v. 35. 36. c. 13. v. 26.

Others make Job deſcend from Nahor the brother of Abraham [o]. Some pretend, that he was the ſon of Eſau [p]; ſeveral even ſay, that he eſpouſed Dinah the daughter of Jacob [q]. Without ſtaying to diſcuſs all theſe opinions, which are ſubject to great difficulties, I imagine, that we have in the book of Job itſelf, more poſitive and ſatisfactory evidences of the time in which he lived.

It is ſaid in the book of Job, that he ſurvived his trials 140 years [r]. The beſt critics think that God did not begin to try him till he was about the age of fifty, and conſequently, that he lived 190 years [ſ]. In fact, he could not be much leſs than fifty years of age at the beginning of his trials; ſince he was already the father of ten children, all by one woman, all grown up and even adult. Beſides, what Job ſays of himſelf ſhews, that he was then a perſon of great power and credit, of approved and well-known prudence [t]. Job muſt then have lived near 200 years, an age which brings us up near to the time of the ancient patriarchs. The other proofs which his own book furniſhes us with, are no leſs concluſive.

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[i] C. 36. v. 13. & 34.

[k] This is the opinion of the moſt part of the Hebrew authors. The Greeks have embraced this opinion, and after them ſeveral modern authors.

[l] See the Talmud, David Kimki, comment. on Job, and the authors quoted above. Rabbi Levi and others make Job to have lived even ſome time before this.

[m] Origen *contra* Celſ. l. 6. p. 305. Cantab. *in* 4°. 1667.

[n] Præp. evang. lib. 7. cap. 8. p. 310. 311.

[o] St Jerom, Rupert, Liranus, Bellarmin. *&c.*

[p] Ariſtæus *apud* Euſeb. præp. evang. l. 9. c. 25.

[q] Chald. interpret.; Rupert. in Geneſ. l. 8. c. 10; Toſtat Genebrard, *&c.*

[r] C. 42. v. 16.

[ſ] See le P. Calmet, in Job, p. 454.

[t] Calmet, *ubi ſupra.*

We know that idolatry began by the worſhip of the heavenly bodies [u]. We ſee from the manner in which Job expreſſes himſelf, that this was the only kind of idolatry known in his time in the country where he lived [x]: for it is to be preſumed, that if there had been any other, he would equally have mentioned it. The book of Job then muſt have been compoſed before the time of the introduction of idol-worſhip, or at leaſt before that practice had penetrated into Idumea. In the mean time the adoration of idols may be traced up to very high antiquity, ſince it prevailed in the time of Jacob in Meſopotamia [y], and probably in ſeveral other countries.

Another cuſtom which characteriſes the remoteſt ages, is the exerciſe of the ſacerdotal office by the heads of families. We ſee by the book of Job, that this holy man was the prieſt of his family; that it was him, who, according to the univerſal practice of the firſt nations, purified his children, and made expiation for the ſins which they might have committed [z]. Even the kind of ſacrifice mentioned in this book, is worthy of obſervation; there we hear of none but holocauſts, and the beſt commentators think, that before the law there were no other ſacrifices uſed. Peace-offerings and ſin-offerings in the manner ordained by Moſes, according to them were not known till under the law [a].

In the book of Job there is alſo frequent mention of apparitions of God. Elihu ſpeaks of revelations and viſions of the night as things then very common. We are not ignorant, that apparitions were never more common, than in the times of the patriarchs. God was then pleaſed very frequently to reveal himſelf to men.

Let us add, that Job's riches conſiſted only in cattle: we muſt even obſerve, that in the detail given of them in his book, there is no mention of mules or horſes, a mark of the moſt remote antiquity *. In a word, we ſee no notice taken of the miracles wrought by Moſes, in Egypt or in the wilderneſs, though Job lived at no great diſtance from theſe countries[b]. He does not even allude to any other events mentioned in ſcripture, except to the deluge[c], and the deſtruction of Sodom[d]. All theſe facts united, bear the impreſſion and character of the higheſt antiquity. Theſe evidences are poſitive, and ſo much the more poſitive as they are taken from the book itſelf, which we have ſtill under our eye. Let us now endeavour to determine, as near as we can, the time when Job may have compoſed his work.

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[u] See l'explic. des fabl. de l'Abbé Bannier, t. 1.

[x] C. 31. v. 26. 27.

[y] Gen. c. 35. v. 4.

[z] C. 1. v. 5.

[a] Calmet, in Job, p. 445.

A circumſtance particularized at the end of his book, inclines me to think, that he muſt have been cotemporary with Jacob. There we read, that his friends made him preſents of gold rings and of *Keſitaths*[e]. Rings were worn in Abraham's time[f]; and they were a part of the female ornaments in the days of Jacob[g]. As to the *Keſitaths*, this kind of money does not ſeem to have been in uſe till after Abraham *. When this patriarch bought the field of Ephron, it is ſaid, that he gave 400 pieces of ſilver for it; and we find, that the value of theſe pieces of ſilver was then determined by their weight[h]: but when Jacob bought a parcel of a field from the children of Hamor, it is ſaid, that he gave for it 100 *Keſitaths*[i]. The ſcripture does not add, that this money was then weighed. It appears then, that the Keſitaths given to Job by his friends were not in uſe till after Abraham, and conſequently Job muſt have lived after this patriarch. We have ſhewn above, that every thing in his writings denotes a very high antiquity, and that, excepting the deluge, and the deſtruction of Sodom, Job does not ſeem to have known any of the memorable events related by Moſes. We believe, therefore, that he muſt have lived near the times of Jacob, about 1730 years before J. C.

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* We find no mules among the Jews before David's time, and no horſes before the reign of Solomon.

[b] See *ſupra*, p. 386.

[c] C. 22. v. 15. & ſeq.

[d] C. 21. v. 21. c. 28. v. 5.

[e] Job, c. 42. v. 11.

[f] Chap. 24. v. 22.

[g] Ibid. c. 35. v. 4.

* See what I have ſaid of the Keſitaths in the article of commerce, chap. 1. p. 283.

[h] Gen. c. 23. v. 16.

[i] Ibid. c. 33. v. 19.

The manner, it is true, in which Job ſpeaks of the Pleiades, might lead us to think, that he had lived ſooner than we have placed him. We ſee, that, at the time when he wrote, the Pleiades foretold the return of the ſpring[k]; and we know, that the ancients determined the ſeaſons by the heliac riſing and ſetting of certain conſtellations. The proper motion of the fixed ſtars is one degree of the ſign in 72 years. Now ſuppoſing, for example, that the ſtar named *Taigetta*, the moſt northern of the ſix ſtars which compoſe the Pleiades, was then preciſely in the colure of the equinoxes; an aſtronomical calculation would fix the epocha of Job, at the year 2136 before the Chriſtian æra, an epocha which is 406 years before that which I have aſſigned.

But it does not appear to me, that this obſervation ought in the leaſt to unſettle that epocha for which I have determined. In fact, the ſtar we ſpeak of not having departed above ſix or ſeven degrees from the colure, during the 406 years which make the difference between the aſtronomical calculation and the epocha which I have fixed; its riſing in that interval would be retarded only about ſix days. The Pleiades, therefore, of which this ſtar makes a part, might ſtill very well foretel the return of the ſpring in the year 1730 before J. C. which is near about the time in which I have thought proper to place Job.

Job, without doubt, had no deſign, in compoſing his work, to inſtruct us in the ſtate of the heavenly bodies, and therefore would not ſtudy that preciſion which a didactic work would have required. A trifling difference therefore of a few days, in my opinion, merits no regard. In a word, all the concluſion that can be drawn from this aſtronomical calculation, in oppoſition to my ſentiment, is, that Job was more ancient than I have made him. But the reaſons which have determined me to make him cotemporary with Jacob, ſeem to outweigh all other conſiderations. Let us now examine, in what manner his work may have been handed down to us.

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[k] See our diſſertation on the conſtellations which are ſpoke of in the book of Job.

Opinions are divided about the author of the book of Job. Some aſcribe it to Solomon, others to Iſaiah: there are even ſome modern writers who think that we owe it to the prophet Ezekiel. All theſe different opinions reſting only on the moſt ſlight and frivolous conjectures, it is unneceſſary to ſpend any time in refuting them.

The book of Job, as we have it at preſent, appears to me to be in part an original work, and in part a tranſlation. In fact, we muſt diſtinguiſh in this work, the hiſtorical narration from the ſpeeches of Job; that is to ſay, his diſcourſes and converſations either with God, or with his wife and friends. The hiſtorical part contains circumſtances which Job certainly could not have mentioned: this, therefore, has been furniſhed by another hand. As to the converſations; this part is a tranſlation into Hebrew from the Syro-chaldaic, which was probably the language uſed by Job[l].

The conformity of ſtyle which is remarked between the hiſtorical narration of Job, and that of the pentateuch, inclines me to think, that Moſes is the author of that work as we have it at preſent. We know, that this legiſlator of the Hebrews was forced to fly from Egypt, for having ſlain an Egyptian who maltreated an Iſraelite[m]. He fled into the land of Madian[n], where he reſided ſeveral years, and where he even married. Moſes, conſequently, had an opportunity of learning the language of that country, which was the ſame, or at leaſt very near to that where Job had lived[o]. Thus Moſes might become acquainted with the work which Job had compoſed, and even left in writing[p]. It is very probable, that having thought proper to tranſlate it for reaſons unknown to us at preſent, he had a mind to make the author of it known; and therefore wrote his hiſtory, in which he has taken care to record the country of Job, the number of his children, the greatneſs of his wealth, his conſtancy in his ſufferings, his confidence in God, his happy deliverance from all his trials, the recompenſe which he received, and, in a word, the number of years which this holy man lived.

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[l] See *ſupra*, p. 386.

[m] Exod. c. 2.

[n] Ibid.

[o] See *ſupra*, p. 126.

[p] Ibid. id.

We have ſeveral of the moſt learned authors of antiquity for the patrons of our opinion. The Chaldee interpreters, Rupert, Toſtat, Genebrard, &c. make Job to have lived in the patriarchal ages, and before Moſes. Origen aſſures us, that this book is more ancient than the legiſlator of the Jews [q]; the Syrians ſeem to be of the ſame ſentiments, ſince they place it at the head of all the canonical books. The author of a commentary printed under the name of *Origen*, thinks, that Job firſt wrote his book in Syriac, and Moſes tranſlated it into Hebrew [r]. Another commentary on the ſame book, quoted alſo under the name of *Origen*, ſays ſtill more expreſsly that Moſes is the author of it [ſ]. This opinion has been, and ſtill is the moſt generally followed [t].

I know very well, that ſome moderns have made great efforts to diſcover in the book of Job ſome places which, according to them, alluded to the paſſage of the Red ſea, and to the law of Moſes. But their conjectures are ſo forced and ſo unnatural, that this opinion falls to the ground of itſelf. The ſlighteſt knowledge of the Hebrew is ſufficient to make any one ſenſible of its weakneſs, and how far theſe authors have departed from the meaning of the texts which they would uſe in ſupport of their opinion.

I confeſs that we find in the book of Job ſome terms and ſome expreſſions which nearly reſemble thoſe of ſome ſacred writers; but this does by no means prove, that Job had borrowed theſe expreſſions from their writings, and that this book had been compoſed later than the works of theſe authors. We might even draw a quite contrary concluſion from this conformity, that theſe writers had borrowed the expreſſions in queſtion from the book of Job: this conſequence is, at leaſt, as natural as the other.

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[q] *Contra* Celſ. l. 6. p. 305.
[r] Origen in Job, p. 277.

[ſ] Comment. in Job a Perionio, Latine edit. in prolog.

[t] Calm. pref. in Job, p. 5.; Acad. des inſcript. t. 4.; Journ. des ſcav. Nov. 1754, p. 730.

But neither the one nor the other is neceſſary. Men have frequently the ſame thoughts, and often expreſs them in the ſame manner without communication. We find every day the ſame turn of thought, and expreſſions nearly ſimilar, in authors who never had the leaſt intercourſe, or any reciprocal communication of their works. David might have had the ſame ideas with Job, on certain ſubjects; and as they both wrote in verſe, it might very naturally happen, that both might uſe turns of expreſſion nearly ſimilar; and yet we ought not to conclude from thence, that Job had taken theſe expreſſions from David, or that David had propoſed to imitate Job.

But, it will be ſaid, do we not meet with a hundred words in the book of Job which are not Hebrew, and which we know to be taken from the Syrian and Chaldean languages; a mixture which renders the ſtyle of this book very different from that of the books of Moſes?

To this I anſwer, That as to the narration, or hiſtorical part of Job, which I aſcribe to Moſes, we do not find one word in it that is not pure Hebrew. The ſtyle of it is perfectly ſimilar to that of the Pentateuch; no body can maintain the contrary, without expoſing himſelf to the charge of prevarication, or of ignorance in the Hebrew language.

As to the reſt of the book of Job, ſuch as we have it, Moſes being only the tranſlator, it is not at all ſurpriſing, that we find ſome words in it taken from the Syriac and Chaldee. The reaſon is obvious. The ſtyle of the book of Job is figurative, poetical, obſcure, and ſententious. It happened to Moſes as it daily happens to all who tranſlate works of a cloſe and obſcure ſtyle, whoſe language is bold, enigmatical, and full of metaphors. Not finding words in the language into which they tranſlate theſe works, able to preſerve the force and energy of the original expreſſions, they are very often forced to retain ſome words of the original, to form others from them, and even to borrow from other languages to ſupply the barrenneſs of that into which they render their authors: by this means they avoid having recourſe to periphraſes, which make the diſcourſe always languiſh, and unavoidably weaken the diction. Moſes finding himſelf in theſe circumſtances, in tranſlating the book of Job, had a regard to the barrenneſs of the Hebrew tongue. He choſe rather to retain the original terms, than to render them by others which would have impaired their ſenſe and energy. Beſides, the relation and affinity between the Hebrew and Chaldee languages is ſuch, that words of the one or of the other language are often uſed indifferently.

I think, I have now ſet forth the chief objections which have been raiſed againſt the antiquity and authenticity of the book of Job. We ſee that it is not hard to anſwer them. But it is not ſo eaſy, as I imagine, to get over the characteriſtics of the greateſt antiquity which appear in all parts of that work.

DISSERTATION III.

Upon the Conſtellations which are ſpoke of in the book of Job.

WE find in the book of Job ſeveral paſſages in which all the learned agree the conſtellations are ſpoke of; but they are very much divided about the preciſe meaning of the terms uſed in the orignal text of theſe paſſages. It muſt even be acknowledged, that, properly ſpeaking, we have only conjectures to guide us in determining preciſely what aſſemblage of ſtars is to be underſtood by the words which Job uſes. Yet theſe conjectures acquire a degree of probability approaching near to certainty, when we examine attentively the roots, the import, and analogy of the terms which Job employs; and eſpecially when we compare his expreſſions with thoſe which Homer, Heſiod, and the moſt ancient profane authors, have uſed in ſpeaking of the conſtellations.

The firſt ſtar named in Job is עש *Aſch*, or עיש *Aiſch*[a]. I imagine, that by this word Job deſigns that conſtellation which we call at preſent the *Great Bear*. The root of *Aiſch* is עוש *Ouſch*, which in Hebrew ſignifies to *gather together*, to *aſſemble*: this root, in Arabic, beſides this, ſignifies to *make a circuit*, to *turn in a round*, to *deſcribe a circle.* Theſe two ſignifications may very well be applied to the Great Bear.

The Great Bear, in fact, is a conſtellation compoſed of ſeven ſtars, nearly of an equal bigneſs. This group of ſtars makes a very viſible and very remarkable circuit round the pole. Whether, therefore, we derive the word *Aiſch* from the Hebrew root *Ouſch*, to *flock together*, or from the Arabic root *Azuas*, to *make a circuit*, both ſignifications perfectly agree

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[a] Cap. 9. v. 9. & cap. 38. v. 32.

gree to this conſtellation. But we have ſtill ſtronger reaſons to confirm this interpretation.

Of all the conſtellations which ſeem not to ſet, the Great Bear is undoubtedly the moſt remarkable. It probably is the firſt which was taken notice of, and conſequently the firſt alſo which received a particular name. I ſhall prove elſewhere, that, in all antiquity, and almoſt in all nations, that collection of ſtars has been deſigned by the name of an animal [b]. *Aiſch* in Job is alſo an animal. "Canſt thou," ſays God to Job, "feed *Aiſch* with his ſons [c]?" This expreſſion repreſents to us the ſtars which compoſe the Great Bear, collected together in the heavens, like a flock which feeds in a meadow. Virgil ſays in the ſame ſtrain: *Polus dum ſidera paſcet* [d]. We know, that the book of Job, excepting the hiſtorical part, is written in a ſtyle highly poetical. This way of ſpeaking ought not therefore to ſurpriſe us. Let us remark further, *Aiſch* in Job is feminine. Ἄρκτος, in like manner, is feminine in Homer. *Aiſch* is the firſt ſtar named in Job. The Great Bear is alſo the firſt conſtellation mentioned by Homer in his deſcription of the ſhield of Achilles.

This is alſo the interpretation of the moſt approved commentators. The author of the Hebrew concordance by *Aiſch* underſtands the Great Bear. "It is alſo," adds he, "the "name of a certain wild beaſt." Further, this word in the Ethiopic tongue, ſignifies a certain fiſh, which they call the *Sea-bear* [e]. Aben-Ezra, in his commentary on Job, ſays likewiſe, "That *Aſch* or *Aiſch* is a northern conſtellation, "compoſed of ſeven ſtars." In another place, he expreſſes himſelf in this manner: "The conſtellations of the north "are twenty-one in number. One of them is *Aiſch*, and "its ſtars to the number of ſeven; and the ſecond, &c. [f];" and ſome pages after in the ſame work, he ſays, "that the ſtars "of the Great Bear are *Aiſch* and his ſons." Schindeler, and after him, Leigh, in their dictionaries, have interpreted *Aiſch* in the ſame manner. "*Aiſch* or *Aſch*," ſay theſe authors, "ſignifies an aſſemblage of ſtars. This word repreſents a "northern conſtellation, named the *Great Bear*, compoſed of "ſeven ſtars. This is," add they, "the opinion of almoſt "all the commentators [g]."

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[b] See the diſſertation on the names and figures of the conſtellations at the end of the 2d volume.

[c] Cap. 38. v. 32.

[d] Æneid. l. 1. v. 611.

[e] See concord. Heb. par Buxtorf, imprimée à Bale.

[f] Liber aſtrolog. nom. *Rachit Hochma*.

The author of the Greek verſion of the book of Job has tranſlated the word *Aiſch*, in the firſt place of the text where he found it, by the *Pleiades*, Πλειαδα, and in the ſecond by Εσπερον, the *Evening-ſtar*. This variation alone is ſufficient to ſhew, that the authority of this interpreter is not to be laid in the balance with that of the authors which I have juſt now quoted. Beſides, it is well known, that we ought not to pay any great regard to the Greek verſion of the book of Job. It was not done by the Seventy, who tranſlated only the Pentateuch, as it is eaſy to prove by the authority of Joſephus and Philo, and by ſeveral reaſons taken from a compariſon of the Greek verſions of the different books of the Old Teſtament.

The author of the Vulgate is not more uniform in his verſion than the Greek tranſlator. In the firſt place of Job, he tranſlates *Aiſch* by *Arcturum*, a ſtar in Bootes; and in the ſecond by *Veſperum*, the *Evening-ſtar*.

The word כימה *Kimah* comes next. We ſee clearly, that in the different paſſages where this word is uſed [h], it muſt be underſtood of ſome conſtellation remarkable for its relation to an agreeable ſeaſon. God ſays to Job, "Canſt thou bind "the ſweet influences of *Kimah*?" that is to ſay, "Canſt thou "bind up or ſtop the fertility of the earth, or prevent its pro- "ducing flowers and fruits, when *Kimah* appears?" It is evident from this text, that by *Kimah* Job meant the conſtellation which in his time introduced the ſpring.

The different ſignifications of the root of this word, both in the Hebrew and Arabic, concur alſo in pointing out the ſame thing. *Kimah* comes from כמה, *Kamah*, which in Hebrew ſignifies to *deſire*, to *rejoice*. Of all the ſeaſons, it is the ſpring which is undoubtedly the moſt deſired, and which is alſo productive of the greateſt joy and pleaſure. If we derive the word *Kimah* from the Arabic root *Kaouam* or *Kam*, this characterizes the ſpring, at leaſt, as diſtinctly. *Kam* in Arabic ſignifies *ſubigere mulierem*, and to *become warm*. Now, we know, that the earth at the approach of ſpring begins to become warm, and to open its boſom. This is alſo the time when the females of moſt kind of animals become pregnant. It remains only to know, what was the conſtellation which in Job's time introduced the ſpring. Every thing leads us to think that it was the Pleiades.

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[g] Lexicon pentaglotton, on the word *Aiſch*.

[h] Cap. 9. v. 9. c. 38. v. 31.

Beſides the two ſignifications of the Arabic root *Kam*, which we have juſt now mentioned, it ſerves likewiſe to ſignify *a troop*, *a number*, *a multitude*. This ſignification agrees perfectly well to the *Pleiades*, with reſpect to the number of ſtars included in that conſtellation. Accordingly this is the meaning of the name given to this collection of ſtars in ſeveral languages. Πλειαδὲς in Greek ſignifies *multitude*, as does *Kimah* in Hebrew, and *Kaouam* in Arabic.

In fine, we ſee that the beſt verſions of the holy ſcriptures by *Kimah* underſtand the Pleiades. Symmachus and Theodotion have thus tranſlated it. The Talmudiſts ſay alſo that *Kimah* ſignifies *a multitude*, *a number of ſtars*. It is aſked in the Talmud, what is כימה *Kimah?* Rabbi Samuel anſwers: "This word ſignifies, *as it were an hundred ſtars*;" that is to ſay, *Kimah* is a conſtellation which includes a number of ſtars. Rabbi Jonas ſays likewiſe, that *Kimah* is the ſame conſtellation which the Arabians call *Al-Thuraïya*. We know that *Al-Thuraïya* is the name which this people have given to the *Pleiades*[i]. It is true, that Aben-Ezra by *Kimah* underſtands the *Hyades*: but this difference is not conſiderable, ſince both the *Pleiades* and the *Hyades* are included in the conſtellation of the Bull, and are very near each other.

Even aſtronomy favours the opinion which we propoſe. Calculation ſhews us, that the coſmical riſing of the Pleiades about 3500 years ago announced the return of ſpring. I have proved in my inquiry into the antiquity of Job, that this epocha agrees perfectly well with the time when, from the circumſtances mentioned in his book, he appears to have lived.

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[i] See Hyde, not. in tabul. Ulugh-Beg, p. 31. & 32.

The author of the Greek verſion has tranſlated *Kimah* in the firſt place by *Arcturus* [k], in the ſecond by *Pleiades* [l]. But in Amos [m], where this word is alſo found, the Greek interpreter, either by deſign or otherwiſe, has omitted to tranſlate that part of the Hebrew text.

The author of the Vulgate has tranſlated *Kimah* three different ways in the three places where it is found. In the firſt, he renders it by *Hyades* [n], in the ſecond by *Pleiades* [o], and in the third by *Arcturus* [p]. Yet ſtill in the midſt of all this uncertainty, we ſee, that both the author of the Greek verſion, and the author of the Vulgate, have admitted, that the Hebrew word *Kimah* may mean the *Pleiades*.

The third conſtellation named in Job, is כסיל, *Keſil* [q]. The root of this word is *Kaſal* כסל, which in Hebrew ſignifies to be *inconſtant*, *changeable*; in Arabic, to be *benummed*, to be *idle*, to be *cold*.

There is reaſon to believe, that by *Keſil* Job means the Scorpion. It is ſufficient to convince us of this, to examine the manner in which he expreſſes himſelf. God ſays to Job, "Canſt thou looſe the bands of *Keſil*?" that is to ſay, "Canſt thou looſe and open the earth, which is ſhut up and "benummed when *Keſil* appears? Canſt thou make it then "produce flowers and fruits?" Let us add to this what God ſays of *Kimah*, and we ſhall ſee by the characters which diſtinguiſh theſe two ſtars, that they are two conſtellations of the zodiac, but two conſtellations which point out two very oppoſite ſeaſons.

In fact, God ſays to Job, "Canſt thou bind the ſweet influ-"ences of *Kimah* [r]?" that is to ſay, "Canſt thou bind or

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[k] Chap. 9. v. 9.
[l] Chap. 38. v. 31.
[m] Chap. 5. v. 8.
[n] Job, c. 9. v. 9.
[o] Ibid. c. 38. v. 31.
[p] Amos, c. 5. v. 8.
[q] Cap. 9. v. 9. c. 38. v. 32.
[r] Cap. 38. v. 31.

" ſtop the fertility of the earth at the riſing of *Kimah?* Canſt " thou prevent its then producing flowers and fruits?" But in ſpeaking of *Keſil*, God ſays on the contrary, " Canſt thou " looſe the bands or cords of *Keſil*[s]?" that is, " Canſt thou " looſe and open the boſom of the earth, which begins to be " benummed when *Keſil* appears?" It is very clear, that in this paſſage Job intends a conſtellation oppoſite to *Kimah*. We have juſt now ſhown, that by *Kimah* Job deſigned the *Pleiades*. There is, therefore, no doubt but by *Keſil* he deſigned the Scorpion, a conſtellation oppoſed to *Pleiades* by almoſt one half of heaven, and which then announced the approach of winter.

We find that Aben-Ezra underſtood by *Keſil*, that ſtar of the firſt magnitude known by the name of the *Scorpion's heart*, or of *Antares*. In his commmentary on Job, he explains himſelf thus[t]. *The ſweet influences of Kimah*, &c. " *Kimah*, this," ſays he, " is the northern ſtars, and *Keſil* is a ſouthern ſtar. " *Kimah* produces fruits which are the delight of man, and " *Keſil* does the contrary. *Kimah* is a great ſtar, called the " *Bull's Eye*," that is to ſay, *Hyades*; " and *Keſil* is a great " ſtar, called the *Scorpion's Heart*," that is to ſay, *Antares*. The interpretation of Aben-Ezra, which is the ſame with ours, agrees alſo very well with the root of the word *Keſil*, which in Arabic ſignifies to *be cold*, to *be idle*, to *be benummed*, and in Hebrew, to *be inconſtant*, to *be changeable*, as the ſeaſon is at the beginning of winter.

Rabbi Levi Ben-Gerſon ſays alſo, that *Keſil* is one of the ſouthern conſtellations: that when the ſun enters into the ſign where this ſtar is found, the trees can no longer bring forth fruit, on account of the cold which this ſtar brings with it[u].

Laſtly, there remains the plural word מזרות *Mazzaroth*, of whom Job ſays, that they appear each of them in his ſeaſon[x]. Several commentators underſtand by this word, the ſigns of the zodiac. This is the opinion of Pagnin, of Schindeler, of the author of the laſt Engliſh verſion, and of the French tranſlation of the Bible, printed at Cologne in 1739. The Talmudiſts and Rabbi Solomon Iſaki have explained it in the ſame manner[y].

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[s] Cap. 38. v. 31. [t] Cap. 38. v. 31. & 32.

[u] Comment. ſur Job, c. 38. v. 31.

It is probably from this root that the name of the month *Kiſleu* is derived, which anſwers to our November. This month, it is likely, was named *Kiſleu* by the Jews from this ſtar, *Keſil*, which forms the Scorpion's heart.

This opinion ſeems even to be ſupported by the words of the original text. In fact, God ſays to Job, "Canſt thou "bind the ſweet influences of *Kimah*, or looſe the bands of "*Keſil?* Canſt thou bring forth *Mazzaroth* (each) in his "ſeaſon[z]?" Theſe laſt words, *Canſt thou bring forth Mazzaroth each in his ſeaſon?* placed immediately after the *Pleiades* and the *Scorpion*, ſeem to fix the ſignification of this word *Mazzaroth*. It can mean nothing but the ſigns of the zodiac which appear above the horizon ſucceſſively. This explication is ſo much the more probable, that Job introduces *Mazzaroth* in the ſame breath, and immediately after he had ſpoken of two different ſeaſons, announced by two different ſigns of the zodiac.

The ſignification of the root of this word *Mazzaroth*, is no leſs favourable to the explication which we propoſe. *Mazzaroth* comes from the Hebrew נזר *Nazar*, *cinxit*, *incircled*. No denomination can agree better to the ſigns of the zodiac, which form, as it were, a girdle, with which the earth is incircled. This is even the name by which this circle of the ſphere was originally deſigned[a].

With reſpect to the ſecret chambers of וחדרי תימן *Theman*, that is to ſay, of the ſouth, which are ſpoken of in the ſame paſſage[b], it is highly probably that Job thereby intended the ſouthern conſtellations, which are ſecreted from our hemiſphere. This is the opinion of Aben-Ezra[c]. "The

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[x] Chap. 38. v. 32.

[y] See alſo Suid. *voce* Μαζουρωθ, t. 2. p. 481.

[z] Chap. 38. v. 31. & 32.

[a] See the diſſertation upon the names and the figures of the conſtellations at the end of the ſecond volume.

[b] Cap. 9. v. 9. [c] Comment. on Job, c. 9. v. 9.

“ ſecret chambers of *Theman*,” ſays this author, “ are the “ ſouthern ſtars; and as theſe ſtars do not appear at all, or “ but for a ſhort time to our hemiſphere, Job calls them the “ ſecret chambers of the ſouth, as if theſe ſtars were in a ſe- “ cret or concealed place *.”

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* It is to M. l'Abbé l'Avocat librarian to the Sorbonne, and to M. Bernard the king's interpreter for the Hebrew, Syriac, and Chaldee, that I am indebted for the lights furniſhed me by the oriental languages, for determining the ſignification of the conſtellations ſpoken of in the book of Job. I acknowledge further, that it is to theſe gentlemen I am obliged for every thing which I advance in this work, from the etymology and propriety of the Hebrew terms, or of the other oriental languages. They have had the goodneſs to aſſiſt me in this part of my labour.

The End of the FIRST VOLUME.

CHRONOLOGICAL TABLE for the FIRST PART,

Which comprehends from the Deluge to the Death of Jacob incluſive.

Year of the World 1656. THE DELUGE. Before J. C. 2348.

1770. Confuſion of Tongues, and Diſperſion of Families 2224.

EMPIRES.

Years of the world	Years before J. C.	SACRED HISTORY.	Year before J. C.	EGYPT.	Year before J. C.	BABYLON.	Year before J. C.	ASSYRIA.	Year before J. C.	MEDIA.	Year before J. C.	GREECE.		
		Noah goes out of the ark, builds an altar, and offers a burnt-offering to the Lord. God permits man to eat fleſh, commands homicide to be puniſhed with death, &c.												
		Noah begins to labour the ground, and plants vines.												
1757.	2247.	Birth of Peleg.												
1770.	2224.	Tower of Babel.												
				Ham goes into Egypt, and gives his name to that country, always deſigned by the oriental authors under the name of the land of Ham, a name which has not been unknown even to the Greek writers. See Marſham, p. 23. & 24. The ancients placed in theſe firſt ages, the reign of the gods. Theſe gods which are ſaid to have reigned in Egypt were, the Sun, Vulcan, Saturn, Jupiter, Oſiris, and Horus, the laſt of theſe gods.	2218.	Nimrod lays the foundations of the empire of Babylon. It is not known how long he reigned. They give this prince for ſucceſſors, ſeven kings of the Chaldean race, viz. Belus . . . . Chosmas . . . . 7 years. Porus . . . . 35 Nechubes . . . . 43 Abius . . . . 48 Oniballus . . . . . . 40 Chinzirus 45	2218.	Assur is the founder of this monarchy. We are ignorant of the length of his reign, and of the names and actions of his firſt ſucceſſors. We muſt come down as far as to Ninus, whoſe epoch is known by the conqueſt which this prince made of the kingdom of Babylon. See b. 1. p. 41.		It is pretended, that the kingdom of Media was founded by Madai the third ſon of Japhet. It would be difficult to ſpeak of the firſt events which happened in Media. They are abſolutely unknown to us. Cteſias ſays, that the Medes were governed by a king named Pharnus, when Ninus came to ſubdue them. See b. 5. p. 322.		Times which the Greeks themſelves name *unknown*. In this interval appeared the great gods of Greece, Saturn, Jupiter, Neptune, and Pluto, otherwiſe called the Titans. Theſe great gods were originally men, afterwards deified for their famous exploits. They formed a vaſt empire in Europe; which was then almoſt a deſert. I think we may place this event about the times of Terah and Abraham, that is to ſay, about the year 2000 before J. C. The Titans, as I imagine, came from Egypt. See b. 1. p. 65. & 66.		
2083.	1917.	Vocation of Abraham.		Menes is acknowledged by all hiſtorians as the firſt mortal who, ſay they, reigned in Egypt. This Menes is the ſame with Mizraim the ſon of Ham. Marſham, p. 24.								The empire founded by theſe foreign princes did not continue long. After the death of Jupiter, Neptune, and Pluto, the family of the Titans failing of heirs in the direct line, the vaſt empire which they had formed was deſtroyed. Some time after, new colonies failing from Egypt and from Phœnicia, arrived in Greece, and founded new kingdoms. The chiefs of theſe new colonies eſtabliſhed themſelves in different diſtricts. The firſt ſovereignties which we find formed in Greece, after the Titans, are the kingdoms of Athens and Argos. Theſe are alſo the only ones whoſe origin remounts to the ages included in this epoch, or part of our work.		
2084.	1916.	Abraham goes into Egypt.												
2092.	1912.	Abraham defeats Chedorlaomer, and the five kings his allies.		It appears, that at the death of this prince, the kingdom which he had formed was divided at leaſt into four ſovereignties, the beſt known of which is that of Thebes in the Higher Egypt, and that of Tanis in the Lower Egypt. The names of the ſovereigns who governed them are very uncertain, and the events which happened under their reign quite unknown. The only ones of which we know any thing, are,		Under this prince, an Arabian family ſeized the throne, and poſſeſſed it during 215 years, under ſix kings, viz.								
2094.	1906.	Birth of Ishmael.				Mardocentes reigned 45 years		Kings uncertain.		Kings uncertain.				
2107.	1897.	Inſtitution of circumciſion.				* * * whoſe name is effaced in Syncellus, and he reigned 40								
		Abraham entertains three angels under the appearance of travellers.				Sisimordac 28								
2115.	1885.	Ishmael caſt out. Agar makes him marry an Egyptian woman, by whom he has ſeveral children.		Moeris, Siphoas, Vephres, or Venephes.		Nadius . . . . 37 Parannus 40								
2133.	1867.	Alliance between Abraham and Abimelech King of Gerar.		It is in theſe times of darkneſs and obſcurity, that we may, I think, place the reigns of the kings ſurnamed ſhepherds, that is to ſay, of a tribe of *Arabs, or rather Iſhmaelites*, who made an irruption into Egypt, and maintained themſelves for ſome time in ſome of its provinces, where they formed a ſeparate ſtate. Theſe ſtrangers were firſt attacked by Misphragmutosis, one of theſe Egyptian princes who had always kept their ground in ſome part of Egypt. Miſphragmutoſis made himſelf maſter of a great part of the provinces which the ſhepherds had ſubdued. Thethmosis his ſon quite expelled them. We know not when Egypt was reunited again under one and the ſame maſter.		Nabonaddus 25						ARGOS.		ATHENS.
2148.	1856.	Marriage of Isaac.					1794.	Ninus reigns . . . . . . 52 years, ſubdues the Babylonians and the Medes.					1831.	Ogyges.
2200.	1800.	Alliance of Isaac with Abimelech King of Gerar.									1822.	Inachus.		
										The kingdom of Media ſubdued, and reunited to that of Aſſyria by Ninus. From which time, to the year 770 before J. C. this nation always continued dependent on the Aſſyrian empire.				We know not the names and hiſtory of his ſucceſſors, till Acteus who was ſucceeded by Cecrops.
2245.	1755.	Marriage of Jacob.									1773.	Phoroneus.		
2273.	1731.	Rape of Dinah.					1741.	Semiramis 42						
2288.	1712.	Death of Isaac. Esau retires beyond Jordan into the mountains of the Horites, and ſettles in Seir, where he becomes very powerful. Gen. c. 36.				He was defeated by Ninus, who reunited the throne of Babylon to that of Aſſyria, in the year 1758 before J. C. See b. 1. p. 41.	1699.	Ninias 38			1713.	Apis.		
											1690.	Argus. He gives the name of Argolida to the country.		
2276.	1728.	Joseph ſold into Egypt.												Kings uncertain.
2289.	1715.	Joseph appears before Pharaoh.						We know that from this prince to Sardanapalus, there were always kings in the Aſſyrian empire: but we can neither fix their names, nor the duration of their reigns.						
		About this time lived Job. Arabia Felix ſeems to have been his native country and abode. See our diſſertation.		Kings uncertain.										
2302.	1698.	Joseph reſtores to the Egyptians their cattle and lands, on condition of their paying the king the fifth of their produce. See Gen. c. 47. v. 15. &c.												
2315.	1690.	Death of Jacob.												